BREAST-FEEDING IN THE PHILIPPINES:

LEVELS AND DIFFERENTIALS

by

Elizabeth Metro Go

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DECLARATION

Except where otherwise indicated,

this thesis is my own work.

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Elizabeth M. Go

ELIZABETH M. GO

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ELIZABETH METRO GO

A B S T R A C T

Using the RPFS-WFS data on women involving their latest child born in the last 5 years, this study aims to measure the level of initiation and duration of total and full breast-feeding and to examine the differentials and determinants of total and full breast-feeding initiation and duration.

For most demographic and socio-economic variables, higher initiation corresponds with longer duration of breast-feeding and lower initiation, with shorter duration. No differential by sex of infant is discerned. The results show that subgroups vary substantiallly in whether they start mixed-feeding or full breast-feeding from birth. Although women differ considerably in the length of time they breast-fed, the timing of food supplementation is concentrated within a narrow interval of time since birth.

The nine independent variables used in the regression analyses accounted for 9.7% and 13.Ø% of the variations in breast-feeding and full breast-feeding, respectively, and for 16.6% and 12.3% of total and full breast-feeding duration, respectively. However, only wife's education, place of work, region, ethnicity, and husband's occupation emerged to be common determinants of both total and full breast-feeding initiation and duration.

The results suggest that continued modernization and development would be deterrent to the traditional practice of breast-feeding unless actions are taken to prevent further decline. The strategy of action should be adapted to the conditions prevailing in each region and ethnic groups.

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CHAPTER I

INTRODUCTION

Human milk is nature's gift to the new-born baby. Through all centuries mothers have instinctively put their babies to the breast from birth until such time as the babies were able to eat other foods. Recently however, some mothers have injudiciously abandoned this practice for modern methods of feeding the infants. The problem concerning the decline in breast-feeding which poses a threat to the developing world has captured the interest and concern of not only health technocrats but also demographers. Despite only limited statistics to support it, a declining trend in breast-feeding practices in the Philippines has been widely assumed. To quantify and identify the women who have chosen not to breast-feed or to breast-feed for a short period is the theme of this research.

1.1. Importance of the Study

Breast-feeding is important for two main reasons: (1) for the infant's health and (2) for child-spacing. A great number of studies have shown the relative importance of breast-feeding over bottle-feeding; it is not necessary to describe them here in detail. A recent and detailed account of the benefits of breast-feeding has been given in McCann et al (1981).

Human milk is superior in quality and meets the nutritional needs of infants during at least the first three months of life. It contains biologically active substances that protect the child from bacterial infection, not matched by artificial formulas. In developing countries where the majority of the population lives in sub-standard conditions the infant may face a higher risk of morbidity and mortality when the traditional practice of breast-feeding is

abandoned or curtailed at an early age. The cost of proper bottle-feeding has been estimated at US$200 to $300 in the first year of life (Berg and Muscat, 1973; Cameron and Hufvander, 1976; Greiner et al, 1979; Lawrence, 1980; McKigney, 1971:1005-1012; Reutlinger and Selowsky, 1976; and World Health Organization (WHO), 1981 cited in McCann et al, 1981:529). In the Philippines, the cost of 6 months full feeding an infant with infant formula has been estimated at US$49 to $127 (WHO, 1981:139). It has been argued that where income is low and education poor, breast-feeding may represent the only way of really giving the child a fair chance of survival (WHO, 1981).

The data used in this study show that the proportion dead before age 2 years among latest children of non-breast-feeding women is 136 per thousand compared to 29 per thousand among breast-feeding women. (It should be noted that the figure for non-breast-feeding women includes mothers of those infants who died a few hours after birth). However, it is not the purpose of this study to examine the relationships between breast-feeing and infant mortality. As Page et al (forthcoming) pointed out, the World Fertility Survey (WFS) data are severely inadequate for analysing such relationships; within the WFS context, the relationships between breast-feeding and infant health are of interest only inasmuch as they affect infant mortality which may in turn impinge on fertility.

From a demographic point of view, the importance of breast-feeding lies not only in reducing infant mortality but also in its child-spacing effect, as it operates through post-partum suppression of ovulation. A number of studies showed that where breast-feeding is prolonged and intensive, average post-partum amenorrhea lasts between 1 and 2 years (Chen et at, 1974:287; Hull , 1975:259; Singarimbun and Manning, 1976, Huffman et al, 1978,

Cantrelle and Ferry, 1979 all cited in Page et al, forthcoming: 8), in the absence of breast-feeding, the median post-partum amenorrhic period lasts 2 months (Chen et al, 1974:287). However, lactational amenorrhea seems relatively shorter in the Philippines. For instance, in a prospective study of 794 married Filipinas in Manila in 1973, it was found that the median duration of post-partum amenorrhea for full, partial, and no breast-feeding are approximately 9, 3, and 1 months respectively (Mosley et al, 1977:98). Using the 1974 National Acceptor Survey data, Laing (1976 cited in Jimeno, 1978:1) estimated a mean amenorrheic period of 7.4 months among breast-feeders and 2.8 months among non-breast-feeders. Generally, the post-partum sterile period is prolonged by one-quarter to three-quarters of a month for every month of breast-feeding (Van Ginneken, 1974, Jain and Sun, 1972, and Leridon, 1972 all cited in Kent, 1981:8). If the duration of lactation is less than 6 months its effect on post-partum amenorrhea is minimal (Jain and Sun, 1972 cited in Kent, 1981:8); if breast-feeding is carried out beyond 10 months, the effect increases significantly (Kent, 1981:8). But after 21-27 months, the contraceptive effect disappears (Jain and Sun, 1972 and Bonte and van Balen, 1969, all cited in Hull, 1975:262).

On the other hand, a complete disappearance of an existing pattern of prolonged and intensive breast-feeding could lead to an almost doubling of fertility, unless compensated by the adoption of contraception (Page et al, forthcoming). Osteria and Rosa (1975, both cited in Buchanan, 1975:J-50) estimated that the number of births in the Philippines would be higher by 20-25% in the absence of breast-feeding. Although studies in the Philippines and Bangladesh indicated that oral contraceptives appear inferior to full breast-feeding as a birth-spacing means; this in fact is traceable to the actual use effectiveness of contraception. The sporadic and

temporary use of oral contraceptives by lactational amenorrheic women could induce a resumption of ovulation and subsequently, may lead to a possible increase in fertility (Mosley et al, 1977).

In some societies, particularly tropical African countries, lactation is often associated with a prolonged period of sexual abstinence (Schoenmaeckers et al, 1981 cited in Page et al, forthcoming). Not only is a taboo on sexual activity during lactation observed to safeguard both the woman and her child from health problems associated with pregnancies in quick succession, but there is also often a belief that semen will enter and spoil the breast-milk, thus poisoning the child (Page et al, forthcoming and Singarimbun and Manning, 1976 cited in Lucas, 1980). However, data on the practice of abstinence linked to breast-feeding or health of the child is not available in the Philippines but from the very low percent practising abstinence with conscious family planning motives (see Table 3.2), it can be surmised that 'lactation taboos' may also be uncommon in the Philippines.

Finally, not to be discounted are the benefits both the mother and subsequent birth will achieve. Continued lactation lengthens the birth interval resulting in fewer children. With fewer mouths to feed and more time and attention to give each child and herself, the woman would also have a better share of the family basket which would enable her to replenish her energy and nutritional reserves before another pregnancy occurs (Rosa, 1976 and Morley, 1976).

1.2. Objectives and Scope of the Study

Previous studies on breast-feeding of Filipino women were often based on small samples and not representative of the whole population. Inadequacy or differences in methodology have restricted comparability. While the results of some studies may be indicative of the level of breast-feeding, in some areas generalization cannot be made and analysis of trends is not possible.

Using data from the Republic of the Philippines Fertility Survey-World Fertility Survey (RPFS-WFS), it is envisaged to meet the following major objectives:

1. To study the initiation and duration of breast-feeding and full breast- feeding among Filipino women and examine the differentials by selected demographic and socio-economic characteristics of women and their husband;

2. To identify the determinants in the initiation and duration of breast-feeding and full breast-feeding.

The ultimate aim of the study is to provide health planners of the country with information on recent breast-feeding practices and a perspective on each region which is basic information for everyone concerned with the improvement of infant and child health and nutrition.

A brief explanation of the demographic and socio-economic characteristics of the Philippines, including the health programs and policies, is given in this chapter. Chapter 2 will focus on definition of terms, methodology, and limitations of the study. It

will also include a review of previous studies of breast-feeding in the Philippines with emphasis on the demographic and socio-economic differentials of breast-feeding in Section 2.2.6.

The study will consist of two main components:

a) Levels and differentials of total and full breast-feeding

The levels in the initiation and duration of breast-feeding will be analyzed for a cross-sectional population, to investigate any breast-feeding differential by the following selected demographic and socio-economic variables and the results will be presented in Chapter 3:

1. residence - urban/rural, region, and childhood place of residence
2. age - at marriage, at birth of the child, and current
3. birth order of the child
4. sex of the child
5. education and literacy
6. occupation and place of work
7. ethnicity
8. religion
9. method of contraception used in the open birth interval and desire for future birth

b) Factors affecting total and full breast-feeding

Chapter four will attempt to examine the determinants of total and full breast-feeding initiation and duration and to explain the variations accounted for by the selected demographic and socio-economic variables, taken as the independent variables, and the indices of breast-feeding as the dependent variables.

Chapter 5 will contain a summary of the whole thesis and some remarks on policy implications.

1.3. Demographic and Socio-economic Background of the Country

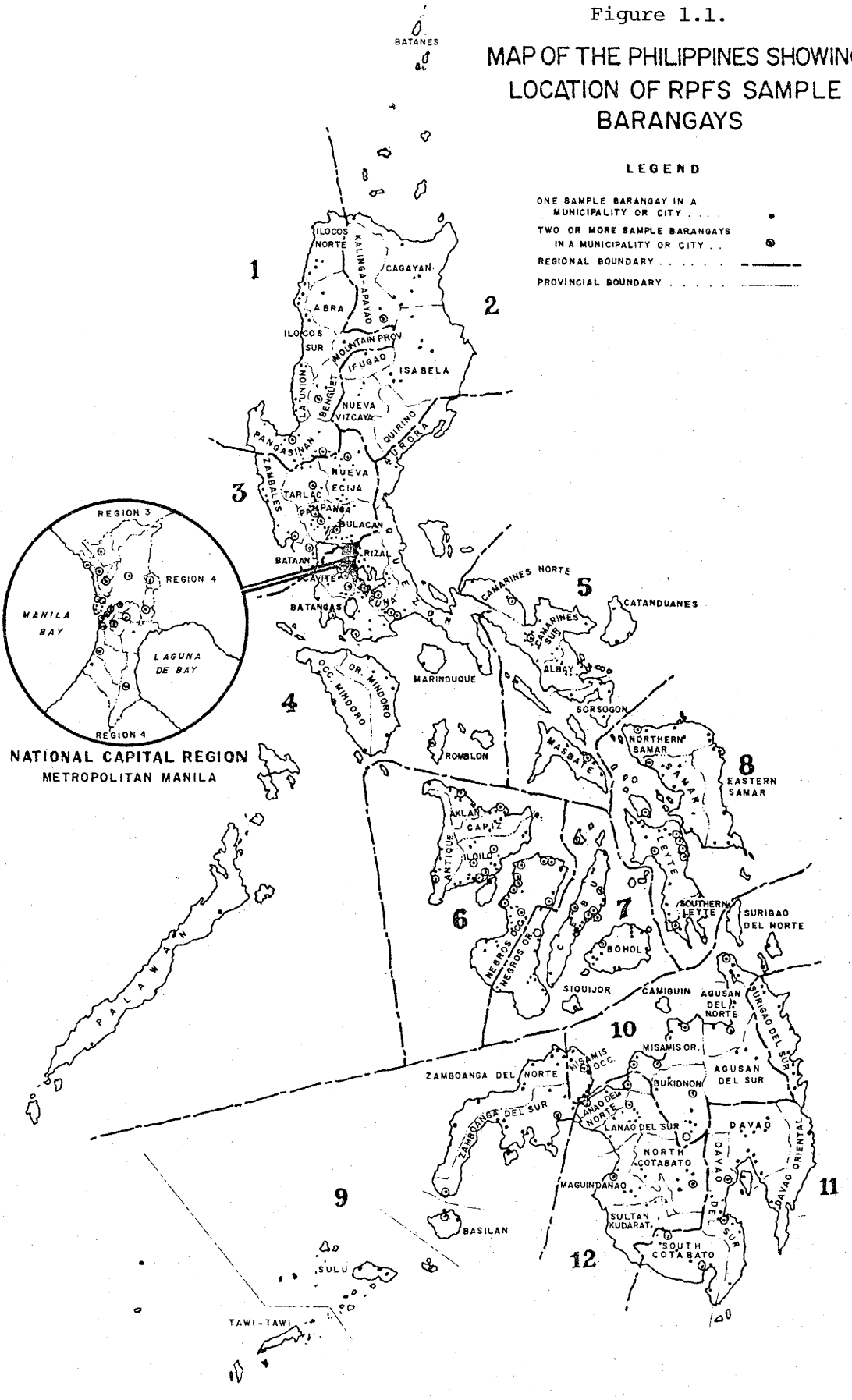
1.3.1. Geographic Features

The principal sources of this subsection are the Philippine Almanac and Handbook of Facts (Yambot, 1977), the Report of Mission on Needs Assessment for Population Assistance (UNFPA, 1979), the 1978 RPFS-WFS First Report (NCSO et al, 1979), and the Philippine Yearbook (NCSO, 1981). The Philippines has often been described as an archipelago of 7,100 island. The two largest islands, Luzon in the north and Mindanao in the far south, make up two-thirds of the country's total land area of approximately 300,000 square kilometers. The third major and central island group consists of smaller islands known as the Visayan Islands. The interior topography of the country is generally mountainous while its coastal plains are narrow but fertile. Volcanic in origin, the rocky ranges traverse the archipelago.

As of March, 1980 the country is divided administratively into 13 regions (see Figure 1.1), including Metropolitan Manila. The regions are subdivided into 73 provinces; the provinces into 60 cities, 1,484 municipalities, and 21 municipal districts; the cities, municipalities and municipal districts into 39,926 barangays. The barangay is the smallest administrative subdivision of the country. Metropolitan Manila has been named the National Capital Region; it is made up of 4 cities and thirteen municipalities.

Figure 1.1.

MAP OF THE PHILIPPINES SHOWING LOCATION OF RPFS SAMPLE BARANGAYS



PREPARED BY THE CARTOGRAPHY DIV,NCSO

1.3.2. Demographic Characteristics

The Philippines registered a total population of 48,098,460 in the 1980 Census of Population which is unevenly distributed over the country. The population density has increased by 14.3% from 140 in 1975 to 160 in 1980. In the same period, the population has grown at an average annual geometric growth rate of 2.64%. Metro Manila has a population of around 6 million and a land area of 636 square kilometers, thus a population density of 9,317 persons per square kilometer.

The population is basically young with 44% belonging to the 0-14 age groups, as of the 1975 Census. Some of the major demographic indicators are shown below:

Population (1980)	48,098,460
Male	24,128,755
Female	23,969,705
% living in urban (1975)	31.6
Crude birth rate (1977)	30.3
Crude death rate (1975-80)	9.0
Gross reproduction rate (1975-80)	2.75
Infant mortality rate (1977)	53
Average age at marriage (1975)	
Male	25.7
Female	23.7

The average age at marriage significantly increased by 2.5 years from 1903 to 1973 (Smith, 1973, 1974a, 1974b cited in NCSO et al, 1979). In 1960 the singulate mean age at marriage for females was 22.3; in 1973 it had risen to 23.4. Substantial regional variations

were observed in the proportions remaining single and in the average age at marriage for both sexes. Divorce has never been legalized, with the exception of the Muslim minorities who are allowed to divorce. The 1978 RPFS-WFS first country report revealed that more than 95% of all ever-married women were married only once. About 5% and 4% of first marriages had been dissolved by death of husband and separation respectively.

During the first half of the century, the crude birth rate ranged from 50 to about 56 per thousand population. A decline in the crude birth rate, however, has been observed during the 1950s and thereafter (United Nations, 1978). A decline of almost 13% in the birth rate was noted between 1960 and 1970, from about 45 births per thousand population to some 39 births per thousand (NCSO et al, 1979). The average estimate for the period 1970-1975 is in the order of 37.4 (United Nations, 1978). "The decline has been primarily the product of delayed marriages. Offsetting that has been a probable slight increase in marital fertility, apparently as a result of improved health and the resulting shortening of inter-birth intervals" (International Labour Organisation, 1974:401, quoted in United Nations, 1978:118).

Aromin (1961 cited in NCSO et al, 1979) estimated the 1904-1905 crude death rate to be 27 per 1000 population which had dropped to 14.5 in 1956-1960. Various estimates of the crude death rate and infant mortality rate, although indicating a substantial mortality decline, are not in complete agreement because of a still deficient vital registration system (Fleiger, 1980). The decline in mortality is particularly a result of the reduction in infant mortality. As with fertility, substantial mortality variations exist between regions and among various subgroups of the population. Generally, the further

is the region from Metro Manila, the higher are the fertility and mortality rates, with relatively higher rates in rural than in urban areas.

1.3.3. Socio-economic Characteristics

The Filipino is a product of the mixture of three racial types - the Pygmy or Negrito, the Indonesian, and the Malay - modified by centuries of contact with the Indians, Chinese, Arabs, Spaniards and more recently, the Americans. Over 90 ethnic groups were enumerated in 1970. In January, 1979 some 70 different groups representing over 4.5 million people were identified to belong to the 'national cultural minorities'. They are the non-Muslim tribes abounding in the Philippines; the best known of these tribes are the Tasadays, Ifugaos, Buid, Mandayas, Talaandig, T'bolis, Tagbanua, Ubos, and Batangan. Because of the country's topography, ethnic groups were able to preserve their identity to some extent.

Of more than 75 languages eight are the mother tongue of over 85% of the population in 1975. Pilipino, the national language, and English are the two official languages. The average literacy rate is quite high at 83.4% (84.6% for males and 82.2% for females) of the population aged 10 and over in 1970 (National Economic and Development Authority (NEDA), 1976:5) but it varies considerably from region to region. As of the 1975 Census, 14% (13.6 for males and 14.4% for females) of the population 6 year old and over had no schooling, 58% (57.6% for males and 34.8% for females) had an elementary education and 26% (27.1 for males and 25.6% for females) had secondary or higher education. The 'not stated' cases comprise 1.6%.

The two major influences of colonial Spain and America have made the Philippines the only Catholic country in the Far East and one of the most westernized countries in Southeast Asia. In 1970 85% of the Filipinos were Roman Catholics, 3.1% were Protestants, 3.9% were Aglipayans (or the Philippine Independent Church) and 1.3% belonged to the Iglesia ni Kristo (or Church of Christ). The Aglipayans are followers of the Philippine Independent Church founded in 1902 by a former Roman Catholic priest named Gregorio Aglipay. The Iglesia ni Kristo adherents are members of an indigenous Filipino offshoot of Christianity founded by Felix Manalo in 1914, who worship Filipino heroes or spiritual leaders as saints. Fewer than 5% were Muslim and the remainder profess Buddhism, other, or no religion.

The extended family structure is an important element of the Filipino society. Family ties still play a predominant role in most spheres of activity, whether social, economic or even political. The degree of family coherence, however, varies between rural and urban families, and between the rich and the poor. Generally, responsibility for the vulnerable members of society lies with the family where the young generations are expected to provide for the aged.

Filipino women often play an important decision-making role; their relatively high labour force participation rate and their influence in economics and politics make the country an exception in Asia. Of the population aged 10 years and over in 1976, the male labour force participation rate was 68.1% while that of the female was 36% (NEDA, 1976). The dependency ratio (ratio of dependents aged 0-14 and 65 and over to the working population aged 15-64) remain at a high level of 94 and 88 in 1970 and 1975 respectively. The country is still mainly agricultural. Although the Philippine economy has been

characterized over the past years by a remarkable growth in terms of GNP, the problem of income inequality still persists.

1.3.4. Health Programs and Policies

One of the national key policies for development set forth in the Philippine Development Plan (Philippines, 1977:11) is the maintenance of population growth levels most conducive to national welfare, without prejudice to the health status and religious beliefs of individuals. The state will pursue an integrated social program to promote total human development. Among others, the national social welfare policy will cover areas of health, nutrition, children, women, and workers welfare, with the aim of reducing infant and preschool mortality and morbidity, the prevalence of malnutrition among children aged Ø-14, the prevalence of anaemia among pregnant women, nursing mothers, affected children and others. In plan formulation and implementation, close linkages are recognized and encouraged specifically among the health, nutrition, and the family planning sub-sectors. It is postulated that a smaller family size leads to greater shares in the food and medical allocation for the family members and improvement in health and nutrition apparently promotes the practice of family planning in the long-run.

Some of the strategies for action are the maximum utilization of existing facilities and manpower, the expansion of primary health services, delivery of health care at proper levels and greater reliance on indigenous food sources. In support of the latter strategy, domestic food production will be accelerated to meet the family's food needs and enhance the reduction and prevention of child malnutrition. Through massive information campaigns, families will be strongly encouraged to produce food at home, use food properly and

undertake income-generating activities.

Although no mention has been made specifically of the promotion of breast-feeding given its importance to infant health and nutrition and its effect on fertility, a special concern by health officials has been demonstrated lately. Recognizing the importance of breast-feeding for the infant's health and survival, the National Coalition for the Promotion of Breast-feeding urge Filipino paediatricians to take the lead in promoting breast-feeding in the face of increased infant deaths directly traceable to improper bottle-feeding (Bulletin Today, May 7, 1982).

Furthermore, a draft code which was stricter than but patterned after a similar measure adopted by the WHO in 1981, was recently finalized by the health ministry to encourage breast-feeding by regulating the promotion and sale of infant formula and other related products. According to the Times Journal (June 30, 1982), the milk industry officials expressed strong objections and reservations about the code. Briefly, the provisions cover the following: proper labelling of the products and in such a way as not to discourage breast-feeding; prohibition of advertising or other forms of promotion; prohibition of the use of facilities and personnel of the health care system in the promotion of infant formula and other related products; and restriction of donations of information equipment or materials by manufacturers or distributors and such donations must be made within the guidelines set by the government.

CHAPTER 2

REVIEW OF RELATED LITERATURE, DATA, AND METHODOLOGY

2.1. Definition of Terms

Some demographic terms have been interchangeably used while others have been given special meaning. For instance, the World Fertility Survey (WFS) definitions of open and closed birth intervals deviated substantially from the standard definitions (see for example NCSO et al, 1979); parity and birth order have been either not explicitly defined or have been interchangeably used as in Kent (1981). This section purports to give the reader a precise meaning of some important demographic terms as used here with the hope that this study will be interpreted accordingly. Unless otherwise specified, the following definitions will apply throughout the study:

1. When the baby is given mother's milk solely, i.e., the baby is nourished entirely by breast-milk without any other solid or liquid food, full breast-feeding is said to take place. If the baby is breast-fed either with artificial food or with other nourishment in addition to breast-milk, partial breast-feeding is the term used (NCSO et al, 1979). Mixed feeding also means partial breast-feeding. Total breast-feeding or simply breast-feeding refers to breast-feeding with or without any other solid or liquid food.

2. The duration of breast-feeding is the number of completed months during which the baby received any breast milk. Breast-feeding is completely stopped after this period. In the same way duration of full breast-feeding refers to the number of completed months during which the baby was

solely breast-fed. After this period the baby may be partially breast-fed or entirely bottle-fed.

3. Initiation refers to the proportion of women who had ever breast-fed or fully breast-fed the reference child for any length of time.

4. Open birth interval refers to the interval between the date of interview and the date of birth of the latest liveborn child. It is defined for women who have at least one live birth*, irrespective of current pregnancy /menstrual status.

5. Last closed birth interval is defined only for women with at least two live births.* It is the time span between the dates of birth of the next-to-last child and the last child.

6. Birth order is defined by the order of live birth confinements a woman ever had, counting multiple births as one confinement.

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*Multiple births are treated as single events.

Description of each variable and its categories follows those given in the first country report (NCSO et al, 1979). It is deemed self-explanatory however, and needs no detail explanation, except for the term farmer and agricultural worker. The term farmer as used in the tables and text refers to self-employed persons in agriculture, forestry, and related sectors of the economy, while agricultural worker refers to those not self-employed in these same sectors of the economy.

2.2. Review of Related Literature

The initiation rate and duration of breast-feeding in the Philippines is probably not high by both world and Asian standards. A comparative study carried out by WHO (1981:31) has shown that a large proportion of Filipino mothers in the economically advantaged groups reported that they had never breast-fed their index children; this proportion was ten times higher than those for Hungarian mothers and five times higher than those for Swedish mothers. Kent (1981) attributed the relatively low percent of children breast-fed in the Philippines compared to countries with a similar per caput income, to the longer exposure to Western influence and a lower cultural resistance to alternative methods of infant-feeding. However, the mean duration of lactation was consistent with the general pattern in relation to per caput GNP. Comparative studies in breast-feeding between countries have been increasing in number (see Ferry, 1982; Kent, 1981; and WHO, 1981); hence detailed discussion of this point seems unnecessary here.

How soon Filipino babies were first put to the breast varies with the locality. A study of feeding practices during the first three days of life revealed that more than half of the provincial babies

received non-milk materials alone during this period while slightly over a quarter of the Metro Manila babies were similarly fed. The first food given during this period were ampalaya (bitter melon) juice, castor oil, sugar water, honey, 'tiki-tiki' (a local thiamine preparation extracted from rice bran), rice water and others. More babies (62%) were started with breast-milk in the metropolitan area than in the province (39%). The rest were fed with milk formula during the first three days (Peralta et al, 1962 and Bulatao-Jayme and Madlangsacay, 1965). The findings suggest that some women, especially in rural areas, tend to discard colostrum.

The importance of breast-feeding has long been recognized as reflected in studies dating back to a quarter of a century ago. During the periods when declines in the incidence of breast-feeding in the United States and Europe were noted, del Mundo (1959) wrote about the Philippine situation:

> "Although there are no statistics in the Philippines on the incidence of breast-feeding in previous years, it is general knowledge that about 50 years ago, almost all Filipino infants were purely breast-fed. In the present survey, a decline in the incidence of breast-feeding to 64% is noted from birth."

2.2.1. Initiation and Duration

Subsequent studies suggested a declining trend in the initiation rate and duration of breast-feeding but figures differed in many respects. The differences, which may be attributed to (1) the locale of the study (2) the definition of terms (3) the different measures used (4) the small sample sizes and (5) the methodology, have resulted in limited comparability of results. A synthesis of the findings of these studies is presented in Table 2.1. It should be noted that the % breast-feeding in Table 2.1 refers to either the woman or the child

Table 2.1.

Initiation and Duration of Total and Full Breast-feeding From Various Studies

Author/Source	Survey			Breast-feeding	
	Year of Research	Subject	Area	Initiation (%)	Mean Duration (months)
Franco and Mercado, 1955 cited Peralta et al, 1962	N.S.	Low income group	Caloocan, Rizal	89.5[p]	N.S.
del Mundo, 1959	1958	1,000 infants aged over 1 year born in hospitals	Manila and Quezon City	76.9 (64.2)	12.0[@]
Peralta et al, 1962	1959	142 infants aged 0-3.5 years	Metro Manila	86.6, 92.2[$]	9.5
Guthrie, 1962 cited in Bulatao-Jayme and Madlangsacay, 1965	1962	N. S.	Manila	(66.7)	18.0
Guthrie, 1964 cited in Bulatao-Jayme and Madlangsacay, 1965	1964	middle class and rural communities	Manila	(67.0) U: 41.0 R: 86.0	U: 43% weaned at 6 months R: 33-50% weaned at 19 months
Bulatao-Jayme and Madlangsacay	1964	767 infants aged 0-37 months	N. Luzon, S. Tagalog, and W. Visayas	95.1 (73.7)	13.7 (13.8)
Gabucan-Dulay, 1970	1968	1,000 infants	Luzon, Visayas, and Mindanao	67.9 (43.8) U: 18.0 R: 82.0	12.0[@]
Mejia-Raymundo, 1980	1973	3,791 currently married women	national	84.3 U: 74.1 R: 89.6	12.0[£]
Intengan, 1975 cited in Osteria, 1977	1974	0-3 year old children	Luzon	U: 70.6 R: 93.6 U: (26.5) R: (66.1)	

Table 2.1. (continued)

Author/Source	Survey			Breast-feeding	
	Year of Research	Subject	Area	Initiation (%)	Mean Duration (months)
Paredes et al, 1977	1975	77 children aged 0-24 months	Riles, Barrio de la Paz, Pasig	52% at 3 months[P] 49% at 6 months[P] 38% at 12 months[P]	
Osteria, unpublished cited in Paredes et al, 1977	N.S.	794 infants	Manila	68% at 3 months[P] 59% at 6 months[P] 42% at 12 months[P]	
Osteria, 1977	1973-75	794 women	Manila	76.1	10.3[£]
Jimeno, 1978	1976	720 women	Bohol	93.0	16.6[@@]

Note: Figures in () refer to full breast-feeding.
@ - modal duration, excludes infants not breast-fed.
£ - median duration.
$ - breast-fed by mother and another person.
@@ -excludes women still breast-feeding.
N.S. -Not Stated.
U - Urban
R - Rural
N - Northern
S - Southern
W - Western
P - Prevalence

as the case may be, and unless otherwise specified the duration of breast-feeding refers to the mean number of months of breast-feeding. Apart from Osteria's (1977) paper, breast-feeding or lactation is not explicitly defined.

Keeping the limitations in mind, a loose comparison may be made with del Mundo's (1959) findings for Manila and Intengan's (1975 cited in Osteria, 1977) for urban areas of Luzon. The initiation of full breast-feeding in Manila declined from 64.2% in 1958 to 26.5% in 1974 (Table 2.1). During the same period, the corresponding figure for ever breast-feeding was reduced from 76.9% to 70.6%. A much higher result (86.6%) was obtained by Peralta et al (1962) for Metro Manila in 1959. The prospective study by Osteria (1977) also revealed a relatively higher proportion (76%). Nationally representative results are those by Mejia-Raymundo (1980) where 84.3% of currently married women breast-fed their last child.

Somewhat comparable data for the provinces are those of Bulatao-Jayme and Madlangsacay (1965) and Gabucan-Dulay et al (1970) (see Table 2.1.). For a four year span between the two surveys however, a decline of 27% and 30% in total and full breast-feeding respectively is too high to be plausible. A slowly declining trend was revealed from data in the provinces: 95.1% in 1964 for Northern Luzon, Southern Tagalog, and Western Visayas; 93.6% in 1974 for rural Luzon, and 93% in 1976 for Bohol. A similar pattern can be observed with full breast-feeding in these areas. In general, the incidence of full breast-feeding has been declining faster than that of total breast-feeding.

On the other hand, the durations of breast-feeding are less comparable due to differences in the indices used. The modal duration in del Mundo's and Gabucan-Dulay's studies may reflect more heaping of

responses than an average duration. Apart from memory bias, the important points to consider in measuring duration are the selection and censoring biases associated with the type of data set being used. No mention was made on how biases were handled, except in Osteria's and Mejia-Raymundo's work where life table techniques and log-linear contingency table analysis respectively were used.

In general, the findings pointed to a relatively lower proportion of breast-feeding among the urban subjects and a shorter length of breast-feeding than their rural counterpart. The initiation and duration of full breast-feeding were lower than the corresponding indices found for breast-feeding. The levels were not in complete agreement perhaps due to problems cited earlier; the trend was ambiguous.

2.2.2. Reasons for Stopping Breast-feeding

Women stopped breast-feeding their babies after varying periods, from a few days to over a year. According to Peralta et al (1962), some physicians advocated early weaning at 4 months while others, one year. The most common reasons for women stopping breast-feeding are: inadequacy of milk flow, mothers working at home or outside the home, illness of mother or the baby, cracked nipple or painful breast, and another pregnancy (del Mundo, 1959; Peralta et al, 1962; Bulatao-Jayme and Madlangsacay, 1965; Gabucan-Dulay, 1970; Paredes et al, 1977; and Jimeno, 1978).

Bulatao-Jayme and Madlangsacay (1965) observed that more provincial than urban women had given work outside the home as a reason for weaning. However, Paredes et al (1977) observed that whether or not the woman was working outside the home did not significantly affect the proportion breast-feeding.

A knowledge of the reasons for stopping breast-feeding would have been meaningful if these reasons were evaluated in relation to the age of the child. Because most of the reasons given were biological or behavioural in nature, they were likely to change in response to the prevailing situation.

2.2.3. Kind of Milk Formulas Used

The kind of milk formulas used for the bottle-fed and partially breast-fed infants varies over time. While the majority of the infants were fed with evaporated milk in the late sixties (del Mundo, 1959), this kind of milk was used least fifteen years later. Powdered milk and condensed milk had become popular, the latter was preferred by the low-income group because it is economical, can be kept well without refrigeration, and tends to produce fat babies (Gabucan-Dulay, 1970).

The literature on the kind of milk formulas used has not dealt with the matter in relation to the age of the child. This is important to the understanding of the dynamics of infant-feeding practices, especially for those infants who live solely on milk formulas from birth and also for those who were breast-fed for a short period of time. During this most vulnerable stage of early life, the quality of milk may determine the health status of the infant.

2.2.4. Vitamin/Mineral Supplementation

A majority of babies were given vitamin/mineral supplements on or before the age of one month, some at two or three months. On average, these infants continued to receive the supplements until they were one year old, a few received them for up to five or eight years (del Mundo, 1959 and Gabucan-Dulay, 1970). The vitamin and mineral supplements varied widely. They include 'tiki-tiki' vitamin-mineral

concentrates, multi-vitamin preparations, calcium, iron, and combinations of these.

An awareness of the value of vitamins and minerals can be observed from the reasons for using them given by some Metro Manila and provincial mothers in studies by Peralta et al (1962) and Bulatao-Jayme and Madlangsacay (1965). The majority said that vitamin and mineral preparations provide strength, health, and growth-promoting activity in the child. Others gave them because of medical or paramedical advice. The committee on nutrition of the American Academy of Pediatrics (1958 cited in del Mundo, 1959) has recommended supplements of 30 mg. of vitamin C and 400 units of vitamin D daily for infants less than three months.

2.2.5. Supplementary Feeding

Additional food was given to infants at different ages but in very indefinite amounts. On average, supplementation starts at five and a half to six months. Fruits and fruit juice such as 'kalamansi' (a kind of citrus fruit) papaya, banana, rice water or 'am', and egg were mostly introduced during the first two months of life. In the subsequent months infants were given cereals in the form of rice gruel, biscuits, bread, oatmeal, and special baby cereals; fish; meat; and vegetables. After one year of age, 65% of the infants were sharing the family meal (Peralta et al, 1962 and Bulatao- Jayme and Madlangsacay, 1965). The common reason for giving food supplements to children are: to provide additional nutrients, to teach the child to eat other foods, to make the baby healthy and strong. However, nearly 40% of the mothers were giving supplements because the mother just wants to give or the child wants to eat or because of other people's advice.

Regarding the early introduction of supplementary foods, there are several schools of thought. Both del Mundo (1959) and Gabucan-Dulay (1970) uphold the importance of early introduction of semi-solid foods. Bulatao- Jayme and Madlangsacay (1965) recommended that "the early introduction of supplementary foods, especially of protein rich sources should find a definite place in the nutrition program". Along this line, Peralta et al (1977) asserted that the "modern practice of feeding infants also embraces the introduction of supplementary foods during the first six months of life in order to accustom the infant to foods other than milk and to serve as additional sources of vitamins and mineral". Peralta et al cited two other recommendation: In 1935 Marriot recommended that " the proper age to begin the addition of solid foods was six months". The Food and Nutrition Research Center of the National Development Board in 1960 recommended "the introduction of fruit juices rich in Vitamin C at the age of two weeks, special baby cereal at two months, strained vegetables or fruits at three, and protein foods such as egg, meat, liver, fish, and poultry in small amounts at four months". Recent studies, however, recommended supplementary feeding be given not earlier than four to six months after delivery and not to use bottle to ensure breast-feeding at least a year and preferably two years (Harfouch, 1970, Jelliffe, 1968 and 1975, Jelliffe and Jelliffe, 1975, and Reis, 1974 all cited in Buchanan, 1975).

2.2.6. Breast-feeding Differentials

Mejia-Raymundo (1980) found college education to be the major deterrent factor to breast-feeding practice. Rural residents showed a higher proportion and longer duration of breast-feeding than the urban residents but within cities, the urban natives and those who have been in the cities for at least eight years do not differ in their

breast-feeding practice. Breast-feeding initiation decreases with increasing age while the duration increases with increasing age of women. Employment outside the home has a negative effect on both initiation and duration of breast-feeding.

In a prospective study of 794 married women in Manila from 1973-75, Osteria (1977) observed a significant decline in the median duration of breast-feeding (using life table techniques) with increasing age and educational level. The median lengths of lactation were 9.1 months and 12.8 months for women below 30 years and those over 30 years respectively. Women with elementary or less education breast-fed for 12.3 months, those reaching high school for 8.1 months, and for those with some college education, 4.3 months. While the proportion breast-feeding declines with educational level, the variation by age is unclear and insignificant. Whether the mother is employed full-time, part-time, or not at all affects her breast-feeding performance. Full-time workers breast-fed for less than two months as compared to five months for part-time workers and 11 months for non-workers. The proportion breast-feeding among full-time, part-time, and non-workers are 64%, 73%, and 78% respectively. (A study of rural women by Popkin (1978) has shown that wage increases have a significant effect on breast-feeding participation among the rich women.) Osteria's study also has shown no marked difference in the proportion or duration of lactation between nourished and malnourished mothers. After controlling for the effect of age, the socio-economic differentials still prevail, except among women with high school education where age appeared not to affect the duration of breast-feeding. Overall, the median length of breast-feeding is longer for women beyond 30 years of age.

In another study in Bohol, Jimeno(1978) has observed that generally the mean duration of lactation is positively related to age of the mother, number of living children, and number of children-ever-born. She speculates that generally women with fewer children were younger, had been married for shorter periods, were likely to have jobs outside the home, and may have less favorable attitudes toward breast-feeding due to the effects of increasing modernization and greater access to infant formula. The study has also revealed breast-feeding differentials by type of residence, husband's occupation, family income, and mother's education. The findings have also indicated that lactation duration was not affected so much by the fact that the mother is working than by the kind of occupation she had. Agricultural activities appear compatible with breast-feeding. On the contrary, no significant difference was found in the mean length of lactation of women working at home and those working away from home.

An interesting finding of Jimeno's study is the possible influence of medical personnel on the breast-feeding practices of their patients. Mothers who often visited the Rural Health Unit (RHU) for prenatal care and who delivered in hospitals or were attended by private doctors breast-fed for a shorter time than those who visited and attended by the 'hilots' or traditional birth attendants. However, the kind of attendant during delivery is dependent on the socio-economic status and residence of the women. No great differences were discerned in duration of lactation when mothers were classified according to use and non-use of contraception after delivery of their last child.

Literature from the Philippines on differentials by sex of the child, ethnicity, religion, and contraception is not available. The author believes that no differential exists by sex of the child but this variable is included in the analysis in the next chapter for exploratory reasons. The Philippine population is composed of many ethnic groups which are exposed to different levels of development but ethnicity per se may be a determinant of breast-feeding behaviour. Ethnic groups concentrated in the less developed regions of the country are most likely to be traditional. In fact mortality differentials by ethnic groups are observed by Gonzaga-Esclamad (1982). Thus, ethnicity may be used as an index of traditionalism. Although the Philippine population is predominantly Roman Catholic, variation by religious groups is not impossible. This is more likely to occur between subgroups who differ in their customs and life styles.

2.3. Data Source, Methodology, and Limitations of the Current Study

2.3.1. Data Source

The data used in this study come from the 1978 Republic of the Philippines Fertility Survey-World Fertility Survey (RPFS-WFS). The survey was conducted from 27 February 1978 till 18 June 1978. For the purposes of this survey the country was divided into seven domains or explicit strata: (1) Metropolitan Manila (2)Urban Rest of Luzon (3) Rural Luzon (4) Urban Visayas (5)Rural Visayas (6)Urban Mindanao and (7)Rural Mindanao. In the subsequent chapters, urban Luzon refers to the urban part of Luzon excluding Metro Manila.

A two-stage, two way stratified sample design was used with 'barangays' as the primary sampling units and households as the secondary sampling units. The barangays were selected with a

probability proportional to the size of their population to ensure self-weighting within each stratum. The number of households was determined using probability of selection inversely proportional to barangay size. A systematic selection with a random start was then employed. All eligible women (ever-married women aged 15-49 years who had been a usual resident of that barangay before August 1, 1977) within a selected household were interviewed (see NCSO et al, 1979 for details).

In the survey a total of 9,268 eligible women were successfully interviewed. The women can be classified according to their last pregnancy or last birth status as follows:

Total sample of women		9,268
Never pregnant		244
Last two pregnancies resulted innon-live births		131
Only one pregnancy (excludes women who had only one pregnancy which ended in a live birth)		181
terminated before full term	134	
non-live birth	47	
Last pregnancy resulted in non-live birth, currently pregnant		93
Currently pregnant, first time		181
Last pregnancy resulted in live birth		8,438
child alive	7,976	
child dead	463	

The RPFS-WFS recode tape has been used to generate all the tabulations in this study. Except where otherwise specified, all the figures presented are weighted using the corresponding sample weight for each respondent. Consequently, some detailed data may not add up to the total due to rounding errors.

Women whose last or next-to-last pregnancy resulted in live births were asked about their breast-feeding practices involving their last and/or next-to-last live births regardless of whether the child was surviving or not at the time of interview. The breast-feeding questions asked about the last child are as follows:

404. Now, I would like to ask you about the period since the birth of ___ (NAME OF LAST CHILD), or "your most recent child who later died". Did you breast-feed __(NAME OF CHILD, or "your most recent child"?

YES	1	↓	NO	2	(SKIP to 409)

405. For how many months altogether did you breast-feed him/her?

____ MONTHS (SKIP to 407)	STILL BREAST-FEEDING (SKIP to 408)	86	UNTIL HE/SHE DIED (SKIP to 408)	87	D.K.	99	↓

406. How many months old was he/she when you completely stopped breast-feeding him/her?

407. After ____ months had you completely stopped breast-feeding your child even once a day?

CORRECT 405 or 406 AS NECESSARY
THEN PROCEED TO 408

408. How many months old was the child when you began giving him/her additional food along with breast-feeding?

____ MONTHS	NO ADDITIONAL FOOD GIVEN YET	86	CHILD DIED BEFORE GIVEN OTHER FOODS	87	

A similar set of questions were accordingly asked about the next-to-last child, except that in question 405 the code for STILL BREAST-FEEDING was omitted. Although breast-feeding information was

collected for all index and penultimate children, some of this information was discarded in the coding process. Data on the lactation of the last child of women currently pregnant were coded with those for women with a closed pregnancy interval, i.e., data for their next-to-last pregnancy. As a result the lactation data of their last-but-one child was lost.

2.3.2. Methodology

Simple percentages are useful for measuring the initiation of breast-feeding. Since the data come from a retrospective survey, potential biases are inevitably present, especially in the reported duration of breast-feeding. It has been shown in Appendix 1 that the data on the penultimate child of the women are subjected to a greater selectivity bias than those for their latest child. As mentioned earlier, information on the penultimate children of currently pregnant women is lacking. Likewise, women whose last and next-to-last pregnancy ended in non-live births are not represented.

While it is reasonable to use the open birth interval data rather than the closed birth interval data, the biases still prevail. The life table technique is employed to handle the 'censoring' error. The analysis is restricted to last live births occurring in the last 5 years prior to interview to minimize the memory error and to obtain not only a reasonably good sample size but also data referring to a recent time period. Selectivity bias is reduced by restricting the analysis to a reasonably short time period immediately preceding the survey. It is assumed that using the information on the last live births occurring in the last 5 years is the best choice, i.e., it is subjected to relatively lesser memory bias and selectivity bias but no truncation error.

The subprogram 'SURVIVAL' which is part of the Statistical Package for the Social Sciences (SPSS) is used in the construction of the life tables. Various indices can be used to describe the length of lactation. These include the first and third quartiles, median, and mean. Instead of quartiles the proportion still breast-feeding at various months post-partum are used here. The mean, however, as an index of breast-feeding in this case is not as meaningful as the median because a few women who have breast-fed in extended periods have substantial effect on the mean. The magnitude of this effect is shown in the Appendix Tables. Hence, to measure the central tendency the median is used.

To test for the significance of the differences in the median duration of lactation between sub-groups, the procedure 'COMPARE' which is part of the 'SURVIVAL' program is used. To test for the significance of the differences in the breast-feeding initiation, the extended Chi-square test given in Gibbons (1976) or the t-test for the differences between two proportions is used, whichever is appropriate. To determine the separate effect of the independent variables on the dependent variable, duration or initiation rate of lactation, the multivariate regression analysis using the SPSS 'REGRESSION' subprogram is employed.

For women who breast-fed the child till he/she died, the duration of breast-feeding is equal to the age of the child at death. For women who were still breast-feeding at the date of interview, the duration is calculated by taking the difference between the date of interview in century months and the date of birth of the child which is also in century months. Moreover, the length of breast-feeding beyond 48 months for women who were still breast-feeding was truncated to 48 months. This action is based on observations that women who

have weaned did so at most at 46 months. The approaches used in breast-feeding analysis also apply to full breast- feeding analysis.

2.3.3. Limitations

For a study such as breast-feeding analysis, a retrospective survey data is no doubt inferior to a prospective one. Memory bias and heaping of responses adversely affect the quality of the data. In theory the analysis of the breast-feeding performance of women for all their live births is desirable. However, in practice this is not simple since it is almost impossible to follow up women throughout their child-bearing period. A retrospective survey of lactation associated with all births is an alternative. In a large-scale survey such as the RPFS-WFS however, only data for the last two live births are collected.

Attention is sought in a possible disparity in timing between the occurrence of the independent variable, particularly occupation, and the breast-feeding initiation and duration. The data on occupation refers to the last occupation which the woman may have given up long before she had her latest child. For women who were working at the time of interview the length of time they have been holding the job may have different effect on breast-feeding practice.

While information was obtained on the lactation of the index and penultimate children, the frequency and intensity of breast-feeding are not known. This may have some policy implications if breast-feeding is to be used as an indicator of the post-partum amenorrhic period and also as an indicator of infant health and nutrition.

For women with a multiple last and/or last-but-one live birth the breast-feeding data apply to the child breast-fed longest. This is a negligible number but this group of women may need special attention considering the fact that a relatively higher mortality occurs among the multiple births. Of the women with latest births occurring in the last five years, 61 had multiple births and 40 or 66% of them breast-fed (unweighted cases). The proportions of infants who died are 207 and 286 per 1000 (based on unweighted cases) for breast-feeding and non-breast-feeding women respectively. All deaths occurred within the first six months of life.

Thus, if the findings of this study are to serve as guidance for policy formulation, the limitations of this study must be taken into consideration. It can be assumed that in general the recent breast-feeding performances of women in the sample segment are likely to reflect the current and near future practices of the rest. It should be kept in mind that the indices obtained in this study may only be indicative of the actual level of initiation and duration of breast-feeding because of problems discussed above.

CHAPTER 3

LEVELS AND DIFFERENTIALS IN BREAST-FEEDING AND FULL BREAST-FEEDING

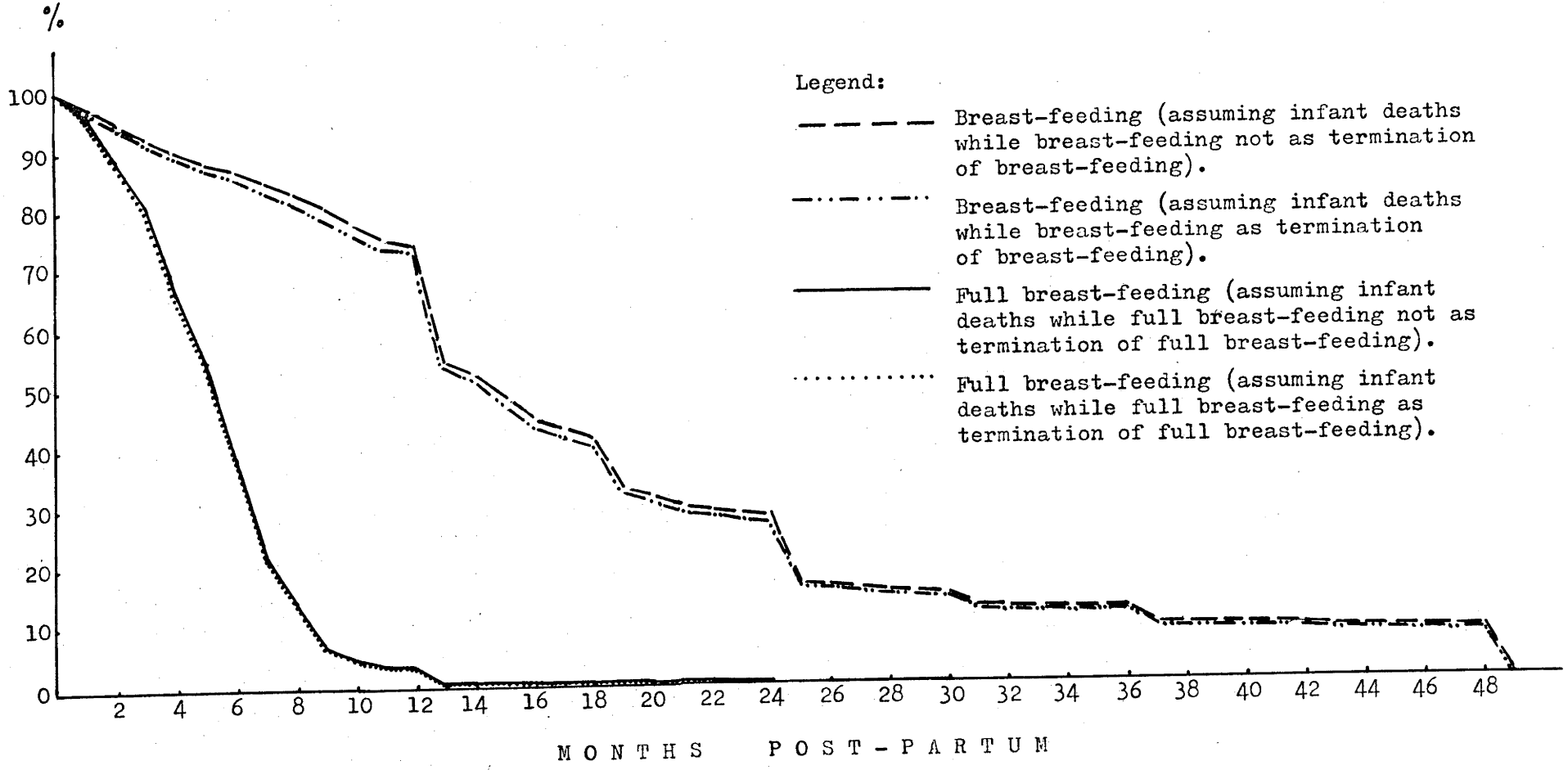
In this chapter, levels and differentials in breast-feeding are analyzed in terms of initiation and duration of breast-feeding and full breast-feeding using data on women pertaining to their latest live births in the last 5 years. It is assumed that both breast-feeding and full breast-feeding start immediately after birth. The variables are classified into two broad groups, namely: demographic and socio-economic characteristics. It is recognized that some link between certain attributes exist and the interpretation of results cannot be made in isolation. Hence, at some stage of the analysis the interpretation is reasonably limited. A multivariate approach will be employed in the next chapter to determine the combined effect of the key variables and to assess the independent effect of each variable after controlling for other variables.

Overall, 85.2% (5,206) women ever breast-fed their latest child. Those who ever fully breast-fed accounted for 80% (4,889) of all women in the study. This means that about 15% of all women did not breast-feed their last child and another 5% started with mixed-feeding immediately after birth.

Figure 3.1 gives the proportion of breast-feeding women still breast-feeding and fully breast-feeding at the end of each month post-partum. The total breast-feeding period varies widely between women and lasts for less than a month to four years with a median duration of 14.7 months. A somewhat sharp decline in the proportion of women still breast-feeding is observed after the twelfth,

Figure 3.1.

Proportion Still Breast-feeding and Full Breast-feeding Among Women Who Ever Breast-fed Their Latest Child Born in the Last 5 Years By Months Post-Partum, WFS-Philippines: 1978.



eighteenth, and twenty-fourth month post-partum; this may be due to heaping of responses or a general tendency of women to stop breast-feeding after those months. As shown in Figure 3.1, full breast-feeding ranges from a period of less than a month to two years with a median duration of 5.3 months. However, after one year post-partum, less than 1% were still fully breast-feeding. For both breast-feeding and full breast-feeding, the curves using different assumptions about infant deaths are very similar. Notwithstanding the differences in methodology and population studied, the national level of initiation and duration of breast-feeding obtained in this study conform with those obtained by Ferry (1981), i.e., 85% of the children were ever breast-fed, with a mean duration of 15 months.

3.1. Initiation of Breast-feeding and Full Breast-feeding

3.1.1. Demographic Characteristics

Table 3.1 gives the proportion ever breast-feeding the latest child by current age, age at birth of the latest child, age at (first) marriage, sex, birth order, and number of living children. Unless otherwise specified, discussion in this subsection is mainly based on Table 3.1.

a. Age of Women

The proportion initiating breast-feeding and full breast-feeding declines with increasing age of women. Women aged 25-44 are more likely to start mixed-feeding from birth than the younger women and the oldest age group. Since the data pertain to the last 5 years breast-feeding experience of women, age at birth and current age differ by at most 5 years only. Nevertheless, exactly the same pattern by age at birth as that for current age is observed.

The pattern, however, is not consistent with that obtained by Ferry (1981: Tables 5A-5D and Kent, 1981: Table 3) using the RPFS-WFS data pertaining to the penultimate child who survived at least 12 months. Since the average age at marriage among Filipino women was 23.7 in 1975, those who had at least one live birth in the last five years at the young ages of 15-24 are more likely to be less educated, living in rural areas, and not employed outside the home. A high proportion (72%) of women aged 15-24 and living in rural areas are found in the five-year data used in this study.

Another plausible reason for higher initiation among younger women may be a recent reversal of trend away from breast-feeding. A reversal of the trend away from breast-feeding has been observed in many developed countries (Winikoff and Baer, 1980 and Sjolin, 1976 all cited in Kent, 1981). The Philippines, being one of the most Westernized countries in Southeast Asia, is likely to follow the new favorable attitude toward breast-feeding. The transition is more likely to be adopted early by educated, younger women who have the tendency to accept innovations more readily than the older women. Meyer (1968, cited in Kent, 1981) observed that a reversal of trend away from breast-feeding began among the most educated American women in the late 1960s. However, it is shown below that if indeed there is trend reversal in the Philippines this is unlikely to be initiated by the most educated women.

b. Age at (First) Marriage

The proportion who ever breast-fed decreases from 9 out of 10 among women married in their teens to 8 out of 10 among those married at their twenties and a further decline to 7 out of 10 among those married after age 30. Generally, initiation of breast-feeding and full breast-feeding decreases with increasing age at marriage. More

late marriers tend to begin the infant's first meal with other foods together with breast milk than the early marriers. Those who marry late are more likely to be older, better educated, living in urban areas, engaged in white-collar jobs and have fewer children. Separate analyses below by variables such as birth order, education, place of residence and occupation support this speculation.

c. Sex of the Last Child

A preliminary analysis of the RPFS-WFS data indicated a preference for an evenly balanced sex composition of the children in the family (NCSO et al, 1979). Based on data on infant mortality showing relatively higher infant mortality rate for male infants in the province of Bohol and in the Philippines as a whole, Williamson (1978) suggested that there is no evidence of neglect of female infants in the Philippines unlike in some developing countries. The proportion ever breast-feeding female infants is slightly higher than those ever breast-feeding male infants. The difference in initiation of full and partial breast-feeding is, however, insignificant. Even in countries where boys are markedly preferred, the breast-feeding differential is not great (Ferry, 1981).

d. Birth Order of the Latest Child and Number of Living Children

The proportion ever breast-feeding increases with and up to the sixth birth order of the latest child and generally declines only slightly thereafter, yielding an inverted U-shaped relation. A slightly higher proportion of women with 4-10 order births started with mixed-feeding from birth.

Birth order is closely related to age of women. Younger women have generally fewer children and if there is a declining trend in breast-feeding initiation they are less likely to breast-feed than the older women (Kent, 1981). As observed above, however, initiation is higher among younger women. The reasons given on differentials by age apply here. Since breast-feeding is positively related to birth interval, consequently parity, it is likely that generally non-initiators have greater probability of reaching higher parity.

Under conditions of moderate or low mortality the number of living children and birth order will not differ much. Not surprisingly, the pattern of breast-feeding initiation is again an inverted U, except for a minor fluctuations. For both breast-feeding and full breast-feeding, the lowest initiation is found among women with ten or more living children.

3.1.2. Socio-economic Characteristics

Breast-feeding patterns are believed to be related to socio-economic development. The Philippines' pace of socio-economic development is as diverse as the islands and the inhabitants. It is expected that breast-feeding differentials are a response to the developmental process. Unless otherwise specified, the discussion in this subsection are mainly based on Table 3.2. The table gives initiation by selected socio-economic characteristics of women and their husband.

a. Region of Residence and Childhood Place of Residence

Eleven percent of the women who gave birth to their latest child in the last 5 years were residing in Metro Manila, of which 68% breast-fed that child. As expected, this breast-feeding proportion is

significantly the lowest in the country as a whole since Metro Manila is the heart of modernization and industrialization. At the other extreme is rural Visayas with significantly the highest proportion ever breast-feeding. The initiation of breast-feeding in the urban regions is significantly lower than their rural counterparts; the largest differential is in the Visayas. This urban-rural differential is to be expected since in urban areas economic activity may be less compatible with breast-feeding, generally women are more educated, there is more accessibility to and advertisement of infant formula and more advice from Western-style doctor are available in urban areas. Popkin (1978) suggested, however, that accessiblity of breast milk substitute may not be an issue in the Philippines because each of the rural village he studied had at least one store selling canned milk. Urban women are generally poor initiators and even among the initiators a sizeable proportion of them start mixed feeding right from birth as compared to rural women. Among the rural regions, mixed feeding from birth is less common in rural Visayas than in rural Luzon and rural Mindanao.

Initiation is lower among urban women than among rural women. Regardless of place of residence, significantly higher proportions of village-raised women breast-fed than women who grew up in a city/town. The results also show that women who grew up in another place tend to mimic the behaviour of women of their present place of residence.

b. Education and Literacy

A substantially higher initiation of breast-feeding is found among the illiterate than the literate. Appproximately 9 out of 10 women with primary and intermediate education breast-fed their latest child. A 10% drop in initiation occurs as women went to high school, a further 6% drop as they went to college and another 8% after

obtaining one or more degrees. Only 6 out of 10 degree-holders breast-fed their latest child. Overall, the differential is at a maximum of 30%.

Only half of women with a college degree ever fully breast-fed compared to around 90% among the uneducated or least educated. Better educated women who breast-fed tend to start immediately with mixed-feeding. Generally, initiation of breast-feeding and full breast-feeding decreases with increasing educational level. Differential by education may be related to the kind and place of work of women. Also, better educated women are more likely to reside in urban areas.

A similar pattern by husband's education as by women's is discerned, apart from initiation among women whose husband had some college education and those with a college degree which do not significantly differ. This similarity in pattern is due to a positive correlation between husband's and wife's education.

c. Religion

The proportion breast-feeding among the Roman Catholics which is slightly below the national level is significantly lower by 5% than that among the Aglipayan adherents. Overall, the initiation of breast-feeding does not markedly vary with religion, except that Islam and Aglipayan adherents are less likely to start mixed-feeding immediately from birth. A crosstabulation of religion and ethnicity shows that Roman Catholic believers are well distributed among all ethnic groups, except Moslem, ranging from 72% among the Ilocanas to 97% among the Bicolanas. A relatively large concentration of Protestant, Aglipayan, and other religion adherents are found among the Cebuanas, Ilocanas, and other ethnic groups. Altogether more than

50% of Iglesia ni Kristo adherents are Tagalas and Ilocanas. Ninety-three percent of Islam followers belong to similar minor ethnic groups such as the Tausog, Maranao, Maguindanao, etc. who are basically native of Mindanao and are referred to as Moslems in this study. Since a large proportion of the population (85%) are Roman Catholics, any differential observed would be of minimal importance.

d. Ethnicity

Ethnicity is more important than religion in the initiation of breast-feeding and full breast-feeding. Initiation among the Tagalas is considerably the lowest. This is to be expected since they are mostly (28%) living in Metro Manila and nearby provinces (20% in urban Luzon and 50% in rural Luzon) and also they are on the average better educated than others. The highest initiation is among the Cebuanas (42% are residing in rural Mindanao, 32% in rural Visayas and 17% in urban Visayas and urban Mindanao) and Ilocanas (73% are found in rural Luzon, 12% in urban Luzon, and 9% in Metro Manila), which are significantly higher than all other groups except the Moslem (73% are living in rural Mindanao and 20% in urban Mindanao). No significant differences are observed between the Ilongas (57% are residing in rural Visayas, 14% in urban Visayas, and 14% in rural Mindanao) and Bicolanas (70% are found in rural Luzon, 16% in urban Luzon, and 14% in Metro Manila) and also between the Moslems and other ethnic group. One out of seven breast-feeding Tagalas started mixed-feeding from birth. This practice is less common among the other ethnic groups. Ethnic diferentials may be related to education and region of residence.

e. Last Occupation and Place of Work

In a study of rural women in Laguna, Philippines, Popkin (1978) observed no significant association between compatibility of job and breast-feeding participation. The present study, however, shows the contrary.

Fifty-three percent of the women had some kind of occupation at some stage of their life. The occupation discussed here is the last or most recent occupation. Women farmers and agricultural workers were the largest initiators of breast-feeding. Professional and clerical workers who are likely to work away from home initiated the least. A similar finding was observed in Thailand (see Knodel and Debavalya, 1980). Intermediate are those engaged in sales, service, manual, and private household workers. However, whether women were private household workers or not working at all makes no significant difference in initiation of breast-feeding. Although statistically no significant difference is found in breast-feeding initiation between the professional and clerical workers, mixed-feeding from birth is more common among the clerical workers. An explanation of a relatively high proportion starting mixed-feeding among the clerical workers is that these women relatively have less secure jobs and are more financially handicapped. An early return to work means greater security of job. Besides, they lack an accumulated leave which would otherwise be used to extend their maternity leave if they desire to fully breast-feed the infant in the first three months of life.

A somewhat similar pattern as above is observed with husband's occupation. Wives of farmers and agricultural workers represent the highest initiators of breast-feeding and full breast-feeding. Although initiation of breast-feeding among wives of sale workers does not significantly differ from those among wives of professional and

clerical workers, they are less likely to start partial breast-feeding from birth than the other two groups. The above finding indicates that some wives' job are compatible with breast-feeding and the kind of job their husbands hold is associated with women's breast-feeding behaviour, probably due in turn to its close relation to the kinds of work the women do.

f. Method of Contraception and Desire for Future Birth

Initiation is found to be lower among contraceptive users than non-contraceptors. Contraceptive use may be related to the woman's desire for future births. Hence an attempt is made to check whether initiation varies with desire for future births. Interestingly enough, the highest proportion of initiators is found among those who are not certain of their desire for an additional birth, followed by those who wanted more and those who wanted no more in that order. No explanation could be given to this observation unless sufficient controls are introduced in the analysis, which is attempted in the next chapter.

Of the contraceptive users, sterilized women breast-fed the least. A relatively low initiation is also found among women using the pill, injectible, intra-uterine device (IUD), or other female scientific method (which includes the diaphragm and foam tablets). Non-users and women practising abstinence breast-fed the most. Introduction of artificial food with breast milk after birth is more common among the sterilized women than other groups. It is possible that the operation was done after child delivery and it became inconvenient for the newly-operated woman to breast-feed. Also, sterilized women are more likely to be better educated, urban dwellers who had better jobs. It may be also be due to selectivity among contraceptive-users. The effect of selectivity will be examined in

Table 3.1.

Percent Distribution of Women, Initiation of Breast-feeding and Full Breast-feeding, and Median Duration Among Breast-feeding Women Who Ever Breast-fed Their Latest Child Born in the Last 5 Years by Selected Demographic Characteristics, WFS-Philippines: 1978

Characteristics	%	Initiation (%)		Breast-feeding					Full Breast-feeding				
		Total	Full	% Still Breast-feeding at the end of month 3	6	12	18	Median (months)	% Still Breast-feeding at the end of month 0	1	3	6	Median (months)
All Women	100.0	85.2	80.0	90.2	84.8	54.6	33.2	14.7	96.1	89.0	66.6	22.5	5.3
N	(6,110)												
Current Age													
15-19	2.5	87.1@	85.3@	91.6	91.6	79.2	58.1	19.6@	97.6	89.2	57.6	9.6	4.5@
20-24	16.4	89.0	85.2	90.4	84.4	53.8	26.5	14.2	96.7	90.9	66.3	19.4	5.1
25-29	24.8	85.8	80.1	88.2	82.4	52.7	28.2	14.1	95.9	87.9	65.4	19.0	5.2
30-34	22.0	85.5	79.0	91.1	86.0	53.7	32.6	14.7	96.0	89.2	64.3	21.7	5.2
35-39	18.7	82.9	78.2	88.9	83.6	56.8	35.0	14.9	95.2	87.1	67.6	22.8	5.4
40-44	11.5	81.7	75.7	92.5	87.4	55.7	39.2	15.7	96.1	90.1	70.9	31.8	5.7
45-49	4.1	83.1	81.8	94.6	89.2	53.6	42.4	16.8	97.9	92.6	74.6	37.5	5.9
Age at Birth of Child													
15-19	4.9	90.0$	87.3@	91.1	87.9	62.6	34.8	15.8@	97.9	90.6	64.1	10.0	4.8@
20-24	21.9	86.8	82.6	89,2	83.5	53.0	27.6	14.1	96.1	89.9	66.3	20.7	5.2
25-29	25.4	86.2	79.6	88.9	82.6	48.9	27.7	13.0	96.2	88.8	66.8	19.8	5.3
30-34	21.6	84.7	79.6	90.4	85.4	58.1	33.2	15.3	95.5	87.8	62.8	21.7	5.1
35-39	16.7	82.8	77.9	91.1	86.3	60.1	42.6	18.1	95.6	88.2	69.6	27.2	5.6
40-44	8.3	81.1	76.0	93.1	87.9	49.9	36.0	13.0	96.6	90.8	70.5	31.1	5.6
45-49	1.2	84.3	79.7	95.1	95.1	66.0	59.0	24.2	100.0	92.0	78.3	55.1	7.7
Age at (First) Marriage													
10-14	5.3	90.5@	87.4@	93.9	89.7	58.8	39.2	15.5@	98.9	94.6	71.9	28.5	5.7@
15-19	51.8	88.0	83.6	92.2	88.2	59.5	37.6	15.8	97.2	90.7	68.7	24.6	5.4
20-24	32.2	83.0	77.3	89.3	83.0	48.9	27.3	13.0	95.4	87.6	65.3	20.3	5.2
25-29	8.6	77.5	68.7	79.4	68.7	43.8	23.8	12.5	89.7	79.0	53.8	12.4	4.3
30+	2.1	70.6	60.3	79.0	71.6	43.6	33.1	12.5	92.1	87.0	57.7	22.5	4.5

Table 3.1. (continued)

Characteristics	%	Initiation (%)		Breast-feeding					Full Breast-feeding				
		Total	Full	% Still Breast-feeding at the end of month 3	6	12	18	Median (months)	% Still Breast-feeding at the end of month 0	1	3	6	Median (months)
Sex of the Latest Child													
Male	51.2	84.8£	79.5£	90.1	84.5	53.6	32.2	14.3£	95.6	88.4	65.9	21.2	5.3£
Female	48.8	85.6	80.6	90.3	85.1	55.7	34.4	15.0	96.6	89.7	67.2	23.9	5.3
Birth Order													
1	10.8	82.5$	76.1@	83.2	75.8	49.7	26.9	13.0@	93.2	84.7	59.2	16.8	4.6@
2	16.1	83.4	77.1	87.5	81.5	54.5	27.8	14.3	95.6	88.3	64.0	17.6	5.0
3	15.4	83.7	79.4	89.9	84.5	49.3	27.7	13.0	96.2	88.2	64.3	17.4	5.1
4	12.8	88.2	83.1	89.0	82.5	48.9	26.8	13.0	96.0	89.1	68.2	24.1	5.4
5	10.4	88.1	82.2	93.5	88.6	63.6	38.6	16.8	97.5	92.2	68.8	24.8	5.6
6	9.1	89.4	83.7	93.0	89.0	58.2	32.0	14.8	97.0	90.0	67.8	21.3	5.4
7	7.6	84.0	80.3	92.2	88.7	59.5	37.7	16.8	97.8	92.2	69.1	23.7	5.4
8	5.6	86.9	84.4	93.3	88.6	53.3	40.2	15.0	95.8	90.4	69.8	27.4	5.6
9	4.7	86.5	80.5	96.2	89.5	66.6	50.8	19.3	96.8	91.3	75.1	36.0	5.9
10	3.4	84.4	80.9	90.5	88.5	55.1	45.5	15.1	95.0	84.9	66.0	30.7	5.5
11+	4.2	78.7	73.3	92.0	86.9	51.5	40.8	14.4	96.3	87.9	69.5	31.9	5.7
Number of Living Children													
0-1	12.6	80.4@	73.2@	84.4	76.2	49.4	26.0	13.0@	93.8	85.8	60.6	16.4	4.7@
2	17.2	84.6	79.2	88.1	82.9	54.9	29.2	14.4	95.9	88.5	64.6	19.5	5.1
3	16.2	83.8	79.5	89.6	84.5	50.2	29.1	13.1	95.7	88.2	65.7	18.2	5.2
4	13.9	88.6	83.1	90.2	83.1	54.2	28.6	14.4	97.0	89.5	66.5	24.8	5.3
5	11.1	87.2	82.7	92.9	88.4	59.6	37.1	15.7	96.9	91.1	67.6	20.5	5.4
6	8.9	88.3	82.0	93.0	89.6	60.1	39.4	15.7	97.3	90.1	68.4	24.8	5.5
7	7.5	84.4	80.6	92.7	89.9	59.6	40.1	16.8	97.0	90.0	70.0	29.2	5.7
8	5.0	88.8	85.7	94.3	89.3	56.4	40.5	16.6	95.4	88.7	71.3	30.7	5.7
9	3.5	91.5	87.3	93.7	89.6	56.5	46.1	18.4	97.0	92.6	73.5	27.8	5.7
10+	4.0	76.5	70.4	90.5	83.2	46.9	33.6	12.9	94.9	89.0	69.3	32.1	5.7

Note: Details may not add up to total due to rounding errors.
@ - Significant at .001 level.
$ - Significant at .005 level.
£ - Not significant even at .05 level.

Table 3.2.

Percent Distribution of Women, Initiation of Breast-feeding and Full Breast-feeding, and Median Duration Among Breast-feeding Women Who Ever Breast-fed Their Latest Child Born in the Last 5 Years by Selected Socio-economic Characteristics, WFS-Philippines: 1978

Characteristics	%	Initiation (%)		Breast-feeding					Full Breast-feeding				
		Total	Full	% Still Breast-feeding at the end of month 3	6	12	18	Median (months)	% Still Breast-feeding at the end of month 0	1	3	6	Median (months)
All Women	100.0	85.2	80.0	90.2	84.8	54.6	33.2	14.7	96.1	89.0	66.6	22.5	5.3
N	(6,110)												
Region of Residence													
Metro Manila	10.9	67.8@	55.9@	69.7	56.5	29.8	20.2	9.2@	87.5	69.5	40.5	7.6	3.4@
Luzon - urban	8.6	79.2	69.8	86.4	77.4	41.9	22.5	12.7	95.9	88.6	59.1	15.9	4.7
Luzon - rural	34.0	88.4	83.1	93.9	89.7	58.3	36.1	15.3	98.8	93.5	70.0	25.0	5.5
Visayas - urban	4.9	77.3	73.0	78.8	72.6	46.7	27.6	12.8	91.8	85.4	61.0	15.0	5.0
Visayas - rural	19.5	92.7	90.6	93.9	91.4	67.2	42.2	18.4	97.3	93.6	76.4	30.5	5.9
Mindanao - urban	4.3	74.8	71.1	80.3	69.3	40.1	24.0	12.5	86.0	75.2	51.5	17.5	4.2
Mindanao - rural	17.7	89.2	86.6	95.0	91.2	56.2	32.0	14.7	96.1	89.3	67.5	23.0	5.4
Childhood Residence and Place of Residence													
Urban	28.8	73.9@	65.3@	78.3	67.9	38.1	22.9	12.4@	90.8	79.5	52.1	13.2	4.2@
Grew up in City/Town	58.0	71.3	61.7	74.7	62.2	34.8	21.3	12.1	89.2	76.9	47.7	11.5	3.9
Grew up in Rural	42.0	77.5	70.2	82.8	75.3	42.3	24.8	12.6	92.6	82.8	57.5	15.3	4.6
Rural	71.2	89.8	86.0	94.2	90.5	60.3	36.8	15.9	97.7	92.0	71.1	25.5	5.6
Grew up in City/Town	13.7	84.7	79.9	91.4	85.2	54.6	30.0	14.0	97.5	88.7	64.5	20.7	5.2
Grew up in Rural	86.3	90.6	87.0	94.6	91.4	61.2	37.9	16.5	97.8	92.5	72.1	26.2	5.6
Education and Literacy													
Illiterate	11.1	93.6@	90.6@	97.3	95.1	68.3	51.8	21.3@	98.5	92.1	72.5	34.4	5.9@
Literate	88.9	84.2	78.7	89.2	83.4	52.6	30.4	14.2	95.7	88.6	65.7	20.8	5.2
Primary	18.3	92.6	89.2	94.7	91.3	61.0	37.4	16.6	97.3	91.6	71.8	25.2	5.6
Intermediate	39.6	88.0	84.1	92.3	88.0	57.9	33.8	15.4	97.2	91.3	70.4	23.8	5.5

Table 3.2. (continued)

Characteristics	%	Initiation (%)		Breast-feeding					Full Breast-feeding				
		Total	Full	% Still Breast-feeding at the end of month				Median (months)	% Still Breast-feeding at the end of month				Median (months)
				3	6	12	18		0	1	3	6	
High School	20.1	78.2	71.3	85.8	79.1	44.8	22.2	12.8	94.5	86.1	61.5	16.1	4.8
Some College	4.5	72.0	62.6	75.1	59.6	33.0	19.4	9.8	90.0	77.1	40.6	6.6	3.6
College Degree	6.5	63.7	50.1	65.0	49.3	20.1	12.5	6.9	83.2	67.9	29.9	3.5	3.0
Husband's Education and Literacy													
Illiterate	10.4	94.3[@]	92.8[@]	96.6	95.4	68.0	47.8	18.8[@]	98.4	93.2	74.8	34.4	6.0[@]
Literate	89.6	84.1	78.5	89.3	83.4	52.8	31.2	14.2	95.8	88.5	65.4	20.9	5.2
Primary or lower	20.7	91.3	86.8	94.4	92.0	64.5	37.9	17.7	98.1	92.8	70.7	24.8	5.6
Intermediate	32.2	89.3	85.7	93.6	89.5	59.3	36.3	15.4	97.2	91.3	71.2	23.5	5.5
High School	23.9	80.8	74.8	87.0	79.6	43.7	24.2	12.7	95.2	86.4	62.4	18.5	4.9
Some College	6.4	68.3	56.4	75.2	59.8	35.3	18.6	9.8	88.4	74.8	47.4	11.1	3.8
College Degree	6.4	63.5	52.1	60.2	47.3	19.9	10.1	6.4	83.0	68.6	26.6	3.7	2.9
Religion													
Roman Catholic	85.4	84.8[£]	79.4[@]	89.8	84.3	53.7	32.7	14.4[@]	96.1	89.3	67.5	23.0	5.4[@]
Protestant	3.4	85.9	81.2	89.9	83.4	46.2	24.4	12.8	94.2	88.2	66.0	19.6	5.1
Iglesia ni Kristo	2.2	86.3	80.0	91.1	87.1	53.2	34.9	15.0	98.1	92.5	66.4	21.1	5.1
Aglipayan	3.6	90.0	86.7	92.6	89.0	63.9	41.6	18.2	97.1	91.3	75.2	25.0	5.6
Islam	2.6	88.8	86.6	96.4	91.7	77.8	55.9	24.5	97.3	78.8	38.4	13.4	2.9
Other/None	2.9	85.8	82.4	91.1	88.3	63.4	28.8	15.7	94.7	86.1	56.9	19.8	4.7
Ethnicity													
Tagala	18.9	77.1[@]	66.9[@]	83.1	73.6	42.7	23.8[@]	12.6	94.9	83.6	45.9	10.0	3.8[@]
Cebuana	26.5	88.8	85.6	92.5	87.7	54.7	32.6	14.6	95.5	90.4	69.0	21.7	5.3
Ilocana	12.3	89.7	84.0	92.5	89.4	60.6	40.9	15.8	98.0	92.4	76.5	27.4	5.7
Ilonga	11.9	85.1	82.6	87.0	84.0	62.8	41.8	18.4	95.4	87.8	72.0	23.2	5.8
Bicolana	8.8	83.4	79.3	94.8	90.0	48.1	29.5	12.9	98.6	93.5	76.1	30.1	5.9
Moslem	2.4	87.7	85.8	93.8	89.2	74.0	52.2	24.4	97.0	75.0	40.8	14.1	3.2
Other	19.2	86.0	80.7	91.0	85.2	57.1	32.4	15.0	97.6	89.2	57.6	9.6	4.5
Place of Work													
Family Farm	10.5	95.2[@]	92.0[@]	97.7	96.2	73.1	51.9	19.8[@]	99.2	94.6	78.2	32.0	6.1[@]

Table 3.2. (continued)

Characteristics	%	Initiation (%)		Breast-feeding					Full Breast-feeding				
		Total	Full	% Still Breast-feeding at the end of month				Median (months)	% Still Breast-feeding at the end of month				Median (months)
				3	6	12	18		0	1	3	6	
Other Farm	9.4	95.3	93.4	95.8	93.7	62.8	42.2	17.9	98.6	93.8	79.0	31.8	6.0
At Home	11.3	84.9	77.5	89.8	84.3	48.9	27.5	13.0	94.8	87.2	63.1	19.8	5.3
Away From Home	22.4	74.7	65.9	78.0	67.2	37.3	19.2	12.2	91.2	80.9	52.8	13.8	4.2
No Work Since Marriage	46.5	86.1	82.1	92.2	87.4	56.5	33.1	15.2	96.9	90.1	67.0	22.0	5.3
Last Occupation													
Professional	4.2	66.0[@]	55.7[@]	74.1	58.0	23.1	13.5	8.5[@]	86.2	74.1	35.2	4.6	3.1[@]
Clerical	3.3	60.2	44.7	64.4	41.1	15.8	9.0	6.0	84.1	68.1	36.5	6.2	3.3
Sales	12.1	81.2	72.7	84.6	76.9	45.1	23.5	12.7	93.2	85.1	60.1	18.4	4.9
Farmer	10.0	95.4	92.0	97.8	96.2	74.3	53.2	20.5	99.1	95.0	78.3	32.3	6.1
Agricultural	9.9	95.2	93.1	95.9	93.9	62.3	41.8	17.1	98.7	93.5	78.9	31.2	6.0
Private Household	2.8	85.5	81.9	88.3	83.1	51.8	28.6	13.8	93.6	83.7	63.6	21.5	5.1
Services	2.1	79.2	70.4	75.7	68.7	36.6	14.7	12.3	90.0	80.8	51.1	11.8	4.1
Manual (Skilled and unskilled)[&]	9.1	83.0	77.5	86.6	81.1	47.6	25.9	12.9	94.9	86.7	59.6	16.7	4.9
Did Not Work	46.5	86.1	82.1	92.2	87.4	56.5	33.1	15.2	96.9	90.1	67.0	22.0	5.3
Husband's Occupation													
Professional	5.2	68.2[@]	58.0[@]	69.0	55.7	26.3	11.7	8.4[@]	85.8	73.7	31.0	4.3	3.2[@]
Clerical	3.7	65.5	57.5	73.4	60.2	29.0	20.3	8.8	88.2	76.1	39.6	12.5	3.6
Sales	5.4	72.0	66.5	79.4	73.2	41.0	21.7	12.5	92.1	81.5	58.5	21.2	4.7
Farmer	30.4	92.4	89.1	96.1	93.3	66.0	41.6	18.1	97.9	92.4	72.3	26.5	5.6
Agricultural	22.2	92.8	89.2	95.1	91.8	62.7	38.9	16.9	98.6	93.3	74.4	27.2	5.8
Household/Services	5.3	77.9	67.6	80.9	70.6	39.1	20.6	12.3	90.9	79.3	54.3	16.6	4.6
Skilled[&]	22.9	81.2	74.6	86.7	80.0	45.7	28.0	12.8	94.6	86.3	61.6	18.8	4.9
Unskilled[&]	4.3	81.0	76.6	90.5	82.6	50.6	23.5	13.7	99.2	91.1	73.6	13.7	5.3
Did Not Work	0.6	77.8	73.0	80.3	67.8	12.2	12.2	9.4	93.0	91.0	55.3	22.0	4.3
Contraceptive Method Used in Open Birth Interval													
None	51.9	88.9[@]	84.9[@]	94.5	91.1	63.4	41.0	17.9[@]	97.2	91.0	70.5	26.0	5.6[@]
Pill/Injectable	7.2	75.2	69.0	82.0	71.4	35.4	18.4	12.4	94.2	86.8	59.5	16.4	4.6

Table 3.2. (continued)

Characteristics	%	Initiation (%)		Breast-feeding					Full Breast-feeding				
		Total	Full	% Still Breast-feeding at the end of month — 3	6	12	18	Median (months)	% Still Breast-feeding at the end of month — 0	1	3	6	Median (months)
IUD/Other Female Scientific Method	2.5	79.6	72.4	81.8	72.7	32.1	17.0	12.3	93.6	82.7	57.6	10.6	4.6
Condom	6.6	84.3	78.1	87.5	82.6	51.7	28.1	13.4	95.5	86.5	63.0	16.7	4.9
Rhythm	10.6	81.3	74.1	83.3	75.1	43.4	27.8	12.6	92.9	85.7	61.4	18.5	5.0
Withdrawal	13.0	84.9	78.2	88.9	82.8	54.1	28.4	14.4	96.6	88.8	66.5	22.5	5.3
Abstinence	2.7	90.6	87.8	92.7	90.0	67.6	47.4	18.4	97.3	88.5	68.4	29.9	5.5
Female Sterilization	4.5	70.6	61.9	78.3	67.3	31.0	17.0	12.2	91.9	83.2	47.1	12.0	3.8
Douche/Male Steril-ization	0.9	85.5	83.6	84.8	83.9	47.1	11.2	12.9	90.5	87.4	66.8	14.2	5.4
Desire for Future Birth													
Wants More	33.6	86.1@	80.2@	89.3	83.8	60.0	35.2	15.5@	95.7	88.3	65.8	18.5	5.1@
Wants No More	50.9	83.7	78.6	89.8	83.8	51.0	30.2	13.7	95.8	88.8	65.5	21.3	5.2
Undecided	8.8	91.0	87.1	94.1	91.7	62.1	41.3	18.2	98.6	90.9	69.0	32.2	5.8
Not Married/Fecund	6.6	84.4	80.4	92.0	87.7	49.5	36.1	13.0	96.6	91.5	74.9	36.0	6.0
Not Stated	0.1												

Note: Details may not add up to total due to rounding errors.
@ - Significant at .001 level.
$ - Significant at .005 level.
£ - Not significant even at .05 level.
& - Production and Transport Workers.

the next chapter.

3.2. Duration of Breast-feeding and Full Breast-feeding

3.2.1. Demographic Characteristics

Table 3.1 gives the median duration of breast-feeding and full breast-feeding among breast-feeding women. It also shows the proportion still breast-feeding at the end of some given months post-partum. Findings presented in this subsection are mainly based on Table 3.1, unless otherwise specified.

a. Age of Women

Total and full breast-feeding duration increases with increasing age of women. An exception is an unusually long breast-feeding period among the youngest age group; this may be attributed to a relatively few cases and/or higher representation of rural women and less educated women in this group. Substantially longer duration is observed among the oldest age group which is likely to be affected by the small sample size in that age group. It may also imply a general tendency of the oldest group to breast-feed for a much longer period. Generally, however, the differentials by age are not great. It may be observed that among those who started with full breast-feeding from birth, the youngest age group were the ones to introduce supplementary foods early (an average of 4.5 months) and continued to mixed-feed until the child was almost 20 months on the average.

b. Age at (First) Marriage

The length of breast-feeding and full breast-feeding decreases with increasing age at marriage. This is in contrast to the pattern by current age and age at birth of the last child. Late marriers are

more likely to be better educated, employed outside the home and from urban areas. Late marriage, coupled with fear of secondary sterility, may have led these women to want to have their births in quick succession in order to achieve their desired family size; they are thus likely to breast-feed for a shorter period if they had known about the contraceptive effect of breast-feeding. In the next chapter, an attempt will be made to see whether age at marriage per se has an effect on breast-feeding, after controlling for the effect of education, region of residence and place of work.

c. Sex of the Latest Child

The distributions of breast-feeding durations, total and full, are not significantly different between the sexes of the latest child. This finding is consistent with breast-feeding initiation by sex of the latest child.

d. Birth Order of the Latest Child and Number of Living Children

Women with first order births breast-fed significantly the shortest. The significantly longest duration is that of women with 9 births (and 9 living children). Generally, the pattern of breast-feeding and full breast-feeding is an inverted U-shaped, with a peak at the ninth birth order, except for a monotonically increasing pattern in full breast-feeding by number of living children. The earlier food supplementation is introduced, the shorter is the breast-feeding duration.

3.2.2. Socio-economic Characteristics

Kent (1981) has shown that generally the level of development is more important to the duration than initiation of breast-feeding. One of the exceptional cases, however, is the Philippines with lower initiation than countries with a similar per capita income but the mean duration conforms to the general pattern. She attributed the deviation to the country's longer exposure to Western influence and a lower cultural resistance to changing practices in infant feeding. Table 3.2 shows the differentials by selected socio-economic variables measured at the individual level.

a. Region of Residence and Childhood Place of Residence

For both total and full breast-feeding, the duration is significantly shorter among urban- than among rural-dwellers. Regardless of place of residence, the duration is significantly shorter among women who spent their formative years in cities/towns than those who grew up in villages. However, the median duration of breast-feeding among rural-raised urban women tend to be closer to that of the urban than rural native women. Again the median duration among the urban-raised rural women is closer to that of the rural than urban native women. This indicates, as with initiation, that women tend to mimic the breast-feeding behaviour prevalent in their present place of residence.

The median duration of breast-feeding among all breast-feeding women in rural Visayas is twice that of breast-feeding women in Metro Manila - a striking difference of 9.2 months. The rural Visayas category is significantly the highest. Leaving Metro Manila, among the rest of urban areas no significant difference is observed. The pattern of breast-feeding duration after months elapsed since birth

(or age of the child) is a fast declining one for urban regions and a relatively slow declining one for the rural regions. Between rural regions, the decline in Luzon and Mindanao is significantly faster than in the Visayas. A similar pattern in breast-feeding duration prevails for full breast-feeding. Switching to mixed-feeding is on the average about a month late among rural than among urban women.

b. Education and Literacy

A significant difference of 7 months on the average length of breast-feeding is observed between the literate and illiterate women. The average duration of breast-feeding varies significantly by 2-3 months as breast-feeders progressed from one to the next higher educational level. Early introduction of supplementary foods is common among the better educated women. Generally, the length of breast-feeding and full breast-feeding is inversely related to educational attainment of women.

Due to a close positive relation between wife's and husband's education a very similar pattern of total and full breast-feeding durations is discerned by these two variables. That is, the length of total and full breast-feeding decreases with increasing educatinal level of husband.

c. Religion

The Islam group breast-fed the longest period of 24 months on the average, followed by Aglipayan. Islam and Aglipayan groups have significantly longer median duration of breast-feeding than the Roman Catholics and the Protestants. An interesting finding is that Islamic group, though having the longest median duration of breast-feeding, is the one to start supplementary earliest. Further study in this area will be fruitful.

d. Ethnicity

The Tagalas who were mostly living in Metro Manila and nearby provinces breast-fed the shortest period on average. Very early supplementation is again found among the Moslems, as well as among the Tagalas. This implies that ethnicity per se is an important factor in breast-feeding, apart from religion.

e. Last Occupation and Place of Work

Longest duration of breast-feeding is found among farm workers which is significantly longer than agricultural workers; that is, the length of breast-feeding is significantly longer among women working on a family farm than working on another person's farm. Late supplementation is also common among these two groups. Although women working at home breast-fed significantly shorter than those working away from home the difference is not great. However, differentials by occupation is more pronounced. While early mixed-feeding is common to both clerical and professional workers, overall, the clerical workers breast-fed significantly shorter. The results clearly show that white-collar jobs which are generally outside the home are incompatible with breast-feeding. Traditional jobs such as farming/agricultural work are compatible with breast-feeding while other blue-collar jobs are less compatible.

A close association between wives' and husbands' occupation yielded a similar pattern of breast-feeding and full breast-feeding by both variables. Differential by occupation and place of work may be related to urban/rural residence and education of women. The multivariate analysis applied in the next chapter is expected to throw more light on this aspect.

f. Method of Contraception and Desire for Future Birth

Breast-feeding is generally shorter among contraceptors than among non-contraceptors. The sterilized women and those using the pill, injectable, IUD, and other female scientific methods breast-fed the shortest period, but the attrition is heavier among the sterilized women during the first few months post-partum. Also, mixed-feeding is started earlier by sterilized women. Breast-feeding durations among other contraceptive-users are slightly longer than those among groups using sterilization, the pill and IUD.

There is no obvious explanation for a longer duration among breast-feeding women who are undecided as to their desire for future birth. Those who wanted more or no more children, and those not currently married and fecund do not significantly differ in their duration of breast-feeding. However, supplementary feeding is slightly earlier among the undecided and not currently married/fecund groups than those wanting more or no more children.

3.3. Summary and Conclusion

Eighty percent of the women fully breast-fed their latest child for 5.3 months on the average. Altogether, including another five percent of women who gave supplementary foods from birth along with breast-feeding, they breast-fed for a total period of 14.7 months on the average.

Full and total breast-feeding initiation is found to vary across regions; it is higher in rural than in urban regions and lowest in Metro Manila. Initiation of full and total breast-feeding decrease substantially with enhancement of education and occupational status of women and their husbands. Agricultural work is compatible with

breast-feeding and full breast-feeding. Other jobs, especially outside the home, are less compatible. Users of hormonal contraceptives and sterilized women had relatively low initiation. Total and full breast-feeding initiation generally decrease with increasing age of women, decrease with increasing age at marriage, follow an inverted U-shaped pattern with increasing birth order and number of living children; only minor differentials by these variables are observed though. Women who wanted more children had higher initiation than those who wanted no more children. No significant differential in initiation is observed with sex of the latest child and religion. Generally, greater differentials in initiation are observed in full than in total breast-feeding, which means that subgroups vary substantially in whether they start mixed-feeding or full breast-feeding from birth.

The regions with highest and lowest initiation have respectively the longest and shortest duration of breast-feeding and full breast-feeding. This pattern is generally followed by other variables. As with initation, marked differentials by region, education, occupation, and place of work are noted. The pattern in the duration of total and full breast-feeding by these variables are generally similar to those in initiation. Total and full breast-feeding duration increases with increasing age of women and decreases with increasing age at marriage. As with initiation, the pattern of breast-feeding duration follows an inverted U-shaped with increasing birth order and number of living children, except that full breast-feeding duration monotonically increases with number of living children. Unlike initiation, desire for more or no more children does not affect the duration. While Moslems had the longest duration of total breast-feeding they generally gave mixed-feeding earliest. Generally, greater differentials are observed in total than in full

breast-feeding durations, which means that although women differ considerably in their total breast-feeding duration the timing of food supplementation is concentrated within a narrow interval of time since birth. To clearly identify the determinants of breast-feeding behaviour, multivariate analysis will be attempted in the next chapter.

Studies have shown that breast-feeding sufficiently meets the infant's needs during the first three to four months of life. Breast-milk is therefore a potential human resource which nursing women should be aware and make effective use of, in lieu of the unnecessary and unpractical spending on artificial infant feeding. Besides, other foods introduce possibility of infection and allergy. Health programs should be designed to encourage universal breast-feeding for a period of at least one year. Mixed-feeding from birth should be discouraged but the timing of supplemental feeding may vary across subgroups and individuals depending on needs. Possible target population of programs designed to enhance the level of initiation are the older, better educated, urban residents, professional or clerical workers, employed away from home, women whose husbands are engaged in white-collar jobs, and the contraceptive-users. Programs planned to encourage longer period of breast-feeding and proper timing of food supplementation have to focus on almost all subgroups. While generally subgroups who were less likely to initiate breast-fed for a shorter duration, their timing of supplementation is quite early, considering that these women are more likely to be better nourished than others. On the other hand, the high initiators breast-fed for a good number of months but generally gave supplementary food quite late. An obvious exception of this pattern is among Moslem women who although have high initiation and longer duration of breast-feeding gave food supplementation on the fourth month on average.

CHAPTER 4

FACTORS AFFECTING BREAST-FEEDING AND FULL BREAST-FEEDING

Identification of subgroups by their differential breast-feeding behaviour is a major step forward but for policy decision the breast-feeding determinants are of crucial importance. Given a wide sample variation in the demographic and socio-economic variables whose effects on breast-feeding may be confounding, the aims of this chapter are to determine the separate and relative importance of the selected independent variables when the effects of other variables have been controlled, and to determine the amount of variation in initiation and duraton accounted for by the selected independent variables.

The development of appropriate methods for the analysis of breast-feeding data is relatively new, and practical experience of their application is limited. Using the Pakistan WFS data, Page et al (forthcoming) showed that results from exploratory application of two new and sophisticated techniques, the logit-linear regression and the proportional hazard models, are not markedly different from those obtained using a simple exploratory analysis or a simple regressison analysis. Because of its wide application in the social sciences, the multiple regression approach is employed in this study, notwithstanding its drawbacks. A simple additive model without any interaction term is used. Using education, age, place of work, residence/migration status in a log-linear contingency table analysis, Mejia-Raymundo (1980) showed that the effects of these variables on the breast-feeding duration is additive and not multiplicative. Mejia-Raymundo observed that an interaction effect between education and age accounted for only 2.6% of the association explained by the four dependent variables on breast-feeding initiation, the total

percentage of variation explained being 68.Ø%.

Both total and full breast-feeding initiation are dichotomous (ever breast-feeding = 1, never breast-feeding = Ø) dependent variables. Use of Ø-1 individual level dependent variable in regression analysis poses two problems. First, the predicted values of the dependent variable could possibly take values less than Ø or greater than 1. Secondly, the underlying assumption of normality of distribution in regression, hence the error structures, may be violated (Mejia-Raymundo, 198Ø and Page et al, forthcoming). A discriminant analysis may be appropriate for this type of analysis but Kendall (1975: 157) indicated that for a dichotomy the discriminant analysis is equivalent to a multiple regression analysis.

To circumvent the problem inherent in breast-feeding duration data, the observations are constrained to a subset of the data set used in the analysis of initiation. The data set utilized in each regression equations (see Tables 4.1 - 4.4) are shown below:

Dependent Variable	Data Set Used
Initiation	
1) Total	Women with last live birth in the last 5 years preceding the survey
2) Full	Women with last live birth in the last 5 years preceding the survey
Duration	
3) Total	Women who ever breast-fed their latest child born in the first 3 years of the 5 years preceding the survey
4) Full	Women who ever fully breast-fed their latest child born in the first 4 years of the 5 years preceding the survey

The cut-off periods for breast-feeding duration data are based on observations that the proportion still breast-feeding at the end of the second year after birth is only 17% while the proportion still fully breast-feeding after one year is less than 1% (see Figure 3.1). The proportion still breast-feeding at the survey date among women with live births in the first 3 of the 5 years preceding the survey is 10.5%. Because very few women breast-fed beyond 24 months, all breast-feeding duration exceeding 24 months are reckoned as 24 months. In the same manner, a maximum length of 12 months is set for full breast-feeding duration. Figure 3.1 shows that whether infant deaths are considered as termination of breast-feeding or not does not make substantial difference in the median duration of breast-feeding and full breast-feeding. To handle cases where infants died while still breast-feeding the duration is assumed to equal the age at death of the child. All 'not stated' cases are excluded. Finally, a half month is added to durations of total and full breast-feeding in order to express the durations in exact months rather than in completed months.

Of the six demographic factors analyzed in Chapter 3, only two (age at birth of the child and age at marriage) are used in the regression equations. As mentioned earlier, age at birth and current age are closely related because the data refer to a time span of 5 years only. Moreover, age at birth of the latest child corresponds to the start of breast-feeding of that child, hence, the choice of age at birth. Not only are birth order and number of living children closely related, both are also closely related to age at birth and their inclusion would cause multicollinearity problems. Other closely associated variables also cause the same problem, thus: Wife's education is preferred to that of the husband to keep as much as possible the characteristics of the woman who is directly involved in

breast-feeding practice. Woman's occupation, however, is dropped because of its close association with place of work and husband's occupation is used as the social status indicator. Ethnicity is chosen over religion for the regression analysis because larger differentials are observed in breast-feeding between ethnic groups than between religious groups. Also, there is a strong association between ethnicity and religion. Sex of the child is likewise excluded since no significant differential by this factor has been observed in Chapter 3.

Age at marriage, age at birth of latest child and years of education are measured in single years. Illiterate women are assigned zero year of education. The remaining independent variables are categorical and are treated as dummy variables. For the dependent variables, breast-feeding and full breast-feeding initiation, women who ever breast-fed their latest child are assigned the value one, otherwise, zero.

4.1. Initiation of Breast-feeding and Full Breast-feeding

Tables 4.1 and 4.2 show that the two demographic and the eight socio-economic factors altogether accounted for 9.7% and 13.Ø% (the coefficients of multiple determination R square) of the variations in breast-feeding and full breast-feeding initiation, respectively. The R square seems to be quite low, although statistically significant.

Age at birth of the child, the woman's years of education, husband's occupation, region of residence, and ethnicity affect both total and full breast-feeding initiations. Other factors held constant, the higher the age at birth of latest child, the lower is the probability of initiation; this is indicated by the negative regression coefficients for age at birth of child. For example,

Table 4.1.

Regression of Total Breast-feeding Initiation on Selected Characteristics of Women With Last Live Birth Born in the Last Five Years Preceding the Survey, WFS-Philippines: 1978

Characteristics	B	Beta	B[&]	Beta[&]
Age at Birth of Latest Child	-0.005[@]	-0.091[@]	-0.005[@]	-0.095[@]
Age at Marriage	-0.001	-0.012		
Wife's Years of Education	-0.009[@]	-0.115[@]	-0.010[@]	-0.123[@]
Husband's Occupation				
Reference: Professional/ Clerical				
Sales/Services	0.049[@]	0.068[@]	0.050[@]	0.069[@]
Farming/Agricultural	0.097[@]	0.136[@]	0.100[@]	0.141[@]
Wife's Place of Work				
Reference: Away from Home				
Farm	0.069[@]	0.078[@]	0.071[@]	0.080[@]
Home/No Work	0.034[@]	0.048[@]	0.035[@]	0.049[@]
Region of Residence				
Reference: Metro Manila				
Urban Luzon	0.074[@]	0.059[@]	0.076[@]	0.060[@]
Rural Luzon	0.093[@]	0.124[@]	0.099[@]	0.132[@]
Urban Visayas	0.061[$]	0.037[$]	0.061[$]	0.037[$]
Rural Visayas	0.112[@]	0.125[@]	0.118[@]	0.132[@]
Urban Mindanao	0.023[@]	0.013[@]	0.023[@]	0.013[@]
Rural Mindanao	0.083[@]	0.090[@]	0.087[@]	0.094[@]
Ethnicity				
Reference: Tagala				
Cebuana	0.050[@]	0.062[@]	0.051[@]	0.063[@]
Ilocana	0.064[@]	0.059[@]	0.065[@]	0.060[@]
Ilonga	0.020	0.018	0.020	0.019
Bicolana	0.018	0.014	0.019	0.015
Moslem	0.028[$]	0.012[$]	0.033[$]	0.014[$]
Other	0.032[$]	0.036[$]	0.034[$]	0.038[$]
Desire for Future Birth				
Reference: Wants No More				
Wants More	0.003[$]	0.004[$]	0.003[$]	0.004[$]
Undecided	0.031[$]	0.025[$]	0.033[$]	0.026[$]
Not Married/Fecund	-0.021	-0.015	-0.016	-0.011
Childhood Residence				
Reference: City/Town				
Rural	0.010	0.013		
Contraceptive Use				
Reference: User				
Non-user	0.012	0.017		
CONSTANT	0.845		0.841	
R^2	0.0974		0.0969	
F-ratio	27.365		N = 6,110	

Note: @ - Significant at 0.01 level.
$ - Significant at 0.05 level.
& - Excludes variables not significant in the preceding equation.

Table 4.2.

Regression of Full Breast-feeding Initiation on Selected Characteristics of Women With Last Live Birth Born in the Last Five Years Preceding the Survey, WFS-Philippines: 1978

Characteristics	B	Beta	B[&]	Beta[&]
Age at Birth of Latest Child	-0.006[@]	-0.102[@]	-0.006[@]	-0.105[@]
Age at Marriage	-0.002	-0.016		
Wife's Years of Education	-0.013[@]	-0.139[@]	-0.014[@]	-0.151[@]
Husband's Occupation				
Reference: Professional/ Clerical				
Sales/Services	0.049[$]	0.059[$]	0.049[$]	0.060[$]
Farming/Agricultural	0.094[@]	0.118[@]	0.100[@]	0.124[@]
Wife's Place of Work				
Reference: Away from Home				
Farm	0.091[@]	0.091[@]	0.093[@]	0.093[@]
Home/No Work	0.052[@]	0.064[@]	0.054[@]	0.067[@]
Region of Residence				
Reference: Metro Manila				
Urban Luzon	0.088[@]	0.062[@]	0.090[@]	0.063[@]
Rural Luzon	0.128[@]	0.152[@]	0.138[@]	0.163[@]
Urban Visayas	0.118[@]	0.064[@]	0.121[@]	0.065[@]
Rural Visayas	0.168[@]	0.166[@]	0.178[@]	0.176[@]
Urban Mindanao	0.086[@]	0.044[@]	0.088[@]	0.045[@]
Rural Mindanao	0.141[@]	0.135[@]	0.150[@]	0.143[@]
Ethnicity				
Reference: Tagala				
Cebuana	0.077[@]	0.085[@]	0.078[@]	0.086[@]
Ilocana	0.093[$]	0.077[$]	0.096[$]	0.079[$]
Ilonga	0.059[@]	0.048[@]	0.060[@]	0.048[@]
Bicolana	0.066[@]	0.047[@]	0.070[@]	0.050[@]
Moslem	0.057[@]	0.022[@]	0.063[@]	0.024[@]
Other	0.054[@]	0.054[@]	0.058[@]	0.057[@]
Desire for Future Birth				
Reference: Wants No More				
Wants More	-0.010	-0.012		
Undecided	0.026	0.018		
Not Married/Fecund	-0.020	-0.012		
Childhood Residence				
Reference: City/Town				
Rural	0.016	0.018		
Contraceptive Use				
Reference: User				
Non-user	0.020	0.024		
CONSTANT	0.784		0.769	
R^2	0.1303		0.1287	
F-ratio	37.998		N = 6,110	

Note: @ - Significant at 0.01 level.
$ - Significant at 0.05 level.
& - Excludes variables not significant in the preceding equation.

holding constant everything else the probability that women giving birth at age 40 will breast-feed and fully breast-feed are 9.5% and 12.0% less than those giving birth at age 20. This pattern by age suggests either of two things. Firstly, there may be a recent slight upward trend in breast-feeding initiation among young women for they are more likely to start innovation than the older ones, following a 'comeback fashion' to breast-feeding observed in Western societies. Secondly, the observed pattern may be a time trend phenomenon that higher proportion of women initiate breast-feeding when they were young than when they are old. Unfortunately, lack of reliable data in the past does not warrant analysis of time trend.

A significant negative relationship exists between education and initiation. Women with sixteen years of education have 15.1% and 20.6% less probability to breast-feed and fully breast-feed than the uneducated. The strengths of effect of age at birth of latest child and education, as indicated by the Beta coeffecients, do not differ considerably.

Wives of sales/services workers and wives of farmers/agricultural workers respectively have about 5% and 10% higher probability to breast-feed than those of professional/clerical workers. The strength of effect of the farming/agricultural category is twice that of the sales/services relative to the professional/clerical category. Almost the same magnitude of deviations are observed with regard to full breast-feeding. The probabilities that women working on the farm and those working at home or having no work will breast-feed and fully breast-feed are 6.9% and 3.4% respectively higher than those employed away from home. The incompatibility of work away from home with full breast-feeding is even stronger as indicated by the B and Beta coefficients.

Controlling for other factors, the probabilities of breast-feeding in all regions, except urban Mindanao, are significantly higher than in Metro Manila. Living in rural Visayas adds 11.2% to the probability of breast-feeding and 16.8% to the probability of full breast-feeding of those living in Metro Manila. The corresponding figures for residents of rural Luzon are 9.3% and 12.8%, but the strengths of effect of these two rural regions measured in terms of Beta coefficients are almost identical. Generally, the probabilities of total and full breast-feeding initiation are lower in urban than in rural regions. While demographic indicators such as fertility and mortality rates vary with distance of the region from Metro Manila, this pattern does not hold true with respect to breast-feeding in urban Mindanao. There is however no obvious explanation of the low initiation in urban Mindanao. All things being equal, the probabilities of breast-feeding and full breast-feeding of Moslem women is also not significantly different from that of the Tagalas. Moreover, with regard to total breast-feeding initiation the relative effect of being an Ilonga, Bicolana, or Moslem compared to a Tagala is considerably low. Initiation is relatively higher among the Cebuanas and the Ilocanas.

The results also show that the probabilities of initiating breast-feeding and full breast-feeding do not significantly differ between women wanting more births and those wanting no more. Initiation is slightly higher (3.1%) but significant among those undecided as to their desire for future birth than those wanting no more.

It is interesting to note that the regression coefficients of age at marriage, childhood place of residence, and contraceptive use are not significant both in the analysis of breast-feeding and full

breast-feeding initiation, neither the coefficient for desire for future birth in full breast-feeding initiation. When these variables are removed from the regression equations, the total variance explained is reduced by less than Ø.2% only.

For a perspective of a typical modern Filipino mother, consider the following profile: A Tagala with 16 years of education, native resident of Metro Manila, working outside the home, married at age 25 to a professional/clerical worker, has given birth to her latest child at age 35, wanting no more children and using contraceptives, has a probability of breast-feeding of Ø.5Ø and of fully breast-feeding of Ø.33. An Ilocana, native resident of rural Luzon, with the same characteristics as the Tagala above, has a probability of Ø.67 to breast-feed and Ø.57 to fully breast-feed. On the other hand, a Cebuana residing in rural Visayas where she spent her formative years, with 6 years of education, working on a farm, married at age 18 to a farmar, had her latest child at age 38, not using contraceptives, and undecided as to her desire for additional children, has a probability of Ø.97 to breast-feed and Ø.94 to fully breast-feed.

4.2. Duration of Breast-feeding and Full Breast-feeding

Unlike the initiation, greater amount of variations in total breast-feeding duration (16.6%) is explained by the same set of dependent variables than that in full breast-feeding duration (12.3%). All the variables except age at birth of the index child and place of childhood residence show significant effect on breast-feeding and full breast-feeding duration. Late marriage and higher education mean shorter breast-feeding duration (see Tables 4.3 and 4.4). This means that young and old alike breast-fed for about the same length of time, although the above findings on initiation reveal higher initiation among younger women. For example, other factors controlled, women

Table 4.3.

Regression of Total Breast-feeding Duration on Selected Characteristics of Breast-feeding Women With Last Live Birth Born in the First Three of the Five Years Preceding the Survey, WFS-Philippines: 1978

Characteristics	B	Beta	B[&]	Beta[&]
Age at Birth of Latest Child	0.046	0.042		
Age at Marriage	-0.143[@]	-0.075[@]	-0.118[@]	-0.062[@]
Wife's Years of Education	-0.183[@]	-0.111[@]	-0.193[@]	-0.117[@]
Husband's Occupation				
Reference: Professional/ Clerical				
Sales/Services	1.586[$]	0.105[$]	1.547[$]	0.102[$]
Farming/Agricultural	3.046[@]	0.207[@]	3.027[@]	0.206[@]
Wife's Place of Work				
Reference: Away from Home				
Farm	2.380[@]	0.141[@]	2.370[@]	0.140[@]
Home/No Work	1.720[@]	0.117[@]	1.685[@]	0.114[@]
Region				
Reference: Metro Manila				
Urban Luzon	0.065	0,003	0.063	0.002
Rural Luzon	0.135	0.009	0.020	0.001
Urban Visayas	0.152[$]	0.004[$]	0.166[$]	0.005[$]
Rural Visayas	1.949[$]	0.107[$]	1.831[$]	0.101[$]
Urban Mindanao	-0.066	-0.002	-0.056	-0.002
Rural Mindanao	0.158	0.008	0.067	0.003
Ethnicity				
Reference: Tagala				
Cebuana	0.175[$]	0.011[$]	0.170[$]	0.010[$]
Ilocana	1.344[$]	0.062[$]	1.323[$]	0.061[$]
Ilonga	1.235	0.054	1.257	0.055
Bicolana	0.693	0.027	0.811	0.032
Moslem	2.704	0.048	2.744	0.049
Other	0.233	0.012	0.267	0.014
Desire for Future Birth				
Reference: Wants No More				
Wants More	-0.060	-0.004	-0.332	-0.020
Undecided	1.004[$]	0.039[$]	0.946[$]	0.036[$]
Not Married/Fecund	-1.445[$]	-0.063[$]	-1.307[$]	-0.057[$]
Childhood Residence				
Reference: City/Town				
Rural	-0.339	-0.020		
Contraceptive Use				
Reference: User				
Non-user	1.379[@]	0.093[@]	1.429[@]	0.097[@]
CONSTANT	11.962		12.850	
R^2	0.1664		0.1649	
F-ratio	14.979		N = 1,826	

Note: @ - Significant at 0.01 level.
$ - Significant at 0.05 level.
& - Excludes variables not significant in the preceding equation.

Table 4.4.

Regression of Full Breast-feeding Duration on Selected Characteristics of Breast-feeding Women With Last Live Birth Born in the First Four of the Five Years Preceding the Survey, WFS-Philippines: 1978

Characteristics	B	Beta	B[&]	Beta[&]
Age at Birth of Latest Child	0.001	0.004		
Age at Marriage	-0.050[@]	-0.071[@]	-0.049[@]	-0.070[@]
Wife's Years of Education	-0.054	-0.084	-0.057	-0.089
Husband's Occupation				
Reference: Professional/ Clerical				
Sales/Services	0.673[@]	0.121[@]	0.690[@]	0.124[@]
Farming/Agricultural	0.664[@]	0.123[@]	0.688[@]	0.128[@]
Wife's Place of Work				
Reference: Away from Home				
Farm	0.517[@]	0.085[@]	0.521[@]	0.085[@]
Home/No Work	0.369[@]	0.069[@]	0.365[@]	0.068[@]
Region				
Reference: Metro Manila				
Urban Luzon	0.616[@]	0.063[@]	0.625[@]	0.064[@]
Rural Luzon	0.766[$]	0.138[$]	0.823[$]	0.148[$]
Urban Visayas	0.731[@]	0.056[@]	0.730[@]	0.056[@]
Rural Visayas	1.167[@]	0.181[@]	1.222[@]	0.189[@]
Urban Mindanao	0.369[@]	0.027[@]	0.364[@]	0.027[@]
Rural Mindanao	0.690[@]	0.100[@]	0.728[@]	0.105[@]
Ethnicity				
Reference: Tagala				
Cebuana	0.538[@]	0.091[@]	0.542[@]	0.092[@]
Ilocana	1.042[@]	0.132[@]	1.044[@]	0.132[@]
Ilonga	0.709[@]	0.087[@]	0.712[@]	0.087[@]
Bicolana	1.202[@]	0.130[@]	1.201[@]	0.130[@]
Moslem	-0.406[@]	-0.023[@]	-0.400[@]	-0.023[@]
Other Ethnic	0.832[@]	0.122[@]	0.835[@]	0.122[@]
Desire for Future Birth				
Reference: Wants No More				
Wants More	-0.045[@]	-0.008[@]	-0.050[@]	-0.009[@]
Undecided	0.736[@]	0.079[@]	0.734[@]	0.078[@]
Not Married/Fecund	0.097	0.010	0.102	0.011
Childhood Residence				
Reference: City/Town				
Rural	0.157	0.025		
Contraceptive Use				
Reference: User				
Non-user	0.259[$]	0.049[$]	0.263[$]	0.049[$]
CONSTANT	4.071		4.169	
R^2	0.1233		0.1228	
F-ratio	17.778		N =3,059	

Note: @ - Significant at 0.01 level.
$ - Significant at 0.05 level.
& - Excludes variables not significant in the preceding equation.

married at age 27 fully breast-feed a half month shorter and breast-feed 1.4 months shorter than one married at age 17. Women with 16 years of education fully breast-feed Ø.9 month less and breast-feed 2.9 months less than one with no schooling. Every year of improvement in education corresponds to Ø.18 month decline in breast-feeding duration. The Beta coefficients indicate, other factors controlled for, that wife's education has a stronger negative effect on total breast-feeding duration than age at marriage but the difference narrows down with full breast-feeding duration.

The important impact of economic activity on breast-feeding duration is evident. Other factors held constant, wives of sales/services workers and wives of farmers/agricultural workers breast-fed their latest child 1.6 and 3.Ø months longer than those of professional/clerical workers. However, introduction of food supplementation is about two-thirds of a month late among wives of sales/services and farmers/agricultural workers. Women working on farm breast-fed 2.4 months longer than those working away from home and over a half month longer than those working at home or not working.

Controlling for other factors, the impact of region of residence on breast-feeding duration can be seen only among rural Visayas residents who breast-fed 1.9 months significantly longer than Metro Manila women. In other words, apart from rural Visayas, residents of all other regions do not significantly differ from Metro Manila women in the total breast-feeding duration as suggested by the Beta coefficients. The B and Beta coefficients particularly for the Ilocanas show that ethnicity per se affect breast-feeding duration. On the other hand, women in all regions except urban Mindanao, gave food supplementation at most 1.2 months later than those in Metro

Manila. The Ilocanas breast-fed 1.3 months longer than the Tagalas. Apart from Muslim women, late supplementation is observed by all other ethnic groups compared to the Tagalas.

Being not currently married/fecund results in a shorter breast-feeding period by 1.4 months, while indecision as to whether to have additional child or not lead to late supplementation by Ø.7 month compared to those who wanted no more child. If women were aware of the contraceptive effect of breast-feeding, the longer breast-feeding and full breast-feeding durations by 1.4 and Ø.3 months respectively among the non-users of contraceptives may reflect a reliance of these women on the fertility-inhibiting effect of breast-feeding.

Let the following example portray the negative impact of modernization and development on breast-feeding duration. A Tagala with 16 years of education, native resident of Metro Manila, working outside the home, married at age 25 to a professional/clerical worker, had given birth to her latest child at age 35, wanting no more child, and using contraceptives, will breast-feed and fully breast-feed respectively for a mean duration of 7.1 and 2.Ø months. An Ilocana, native resident of rural Luzon, with the same characteristics as that of the Tagala, will breast-feed and fully breast-feed for a mean duration of 8.2 and 4.Ø months respectively. A Cebuana, residing in rural Visayas where she spent her formative years, with 6 years of education, working on a farm, married at age 18 to a farmer, had her latest child at age 38, not using contraceptives, and undecided as to her desire for future birth, will breast-feed for a mean duration of 2Ø.5 and 6.9 months, respectively.

4.3. Summary and Conclusion

The selected two demographic and eight socio-economic variables account for 9.7% and 13.0% of the variations in breast-feeding and full breast-feeding initiation, respectively. The corresponding figures for breast-feeding and full breast-feeding durations are 16.6% and 12.3%. Eliminating the variables which do not show significant effect on the dependent variable results in less than 0.2% reduction in the variations explained by the first set of independent variables in all regression equations.

A similar study using the last closed birth interval data for eight WFS countries (Bangladesh, Indonesia, Sri Lanka, Jordan, Peru, Guyana, Colombia, and Panama) by Jain and Bongaarts (1981:91) showed that the variation in the duration of breast-feeding explained by seven variables (age, parity, infant death, wife's education, residence, sex of child, and place of work of wife) ranges from 19.3% to 31.6% in three countries - Panama, Peru, and Indonesia - and from 5.7% to 13.7% in the remaining five countries. The coefficient of multiple determination R square obtained in this study and similar studies are quite low. There are thus likely to be other factors, other than demographic and socio-economic, which may explain the breast-feeding differentials. Further research on health-related, attitudinal, and psychological factors which may affect breast-feeding behaviour appears encouraging. A negative relationship between age at birth of child and initiation and between age at marriage and duration are observed. Of all the variables included in the analysis, five emerge to be common determinants of both initiation and duration of breast-feeding and full breast-feeding, namely: Wife's education, wife's place of work, region of residence, ethnicity, and husband's occupation.

Increasing proportion of high school and college graduates, industrialization, and urbanization are among the goals of a nation keeping pace with changing time. However, these are the very factors that operate to breakdown the traditional practice of infant feeding. As more women become urbanized, attain higher education and take employment outside the home, a negative impact on breast-feeding practice will be increasingly felt unless policies are designed to prevent further decline.

CHAPTER 5

SUMMARY AND CONCLUSION

5.1. SUMMARY

A decline in breast-feeding practices has caused alarm in developing countries which are already facing widespread poverty and malnutrition. Not only is breast-milk best, and adequate for infants during at least the first three months of life, breast-feeding acts as a natural contraceptive as it inhibits ovulation.

While a declining trend in breast-feeding has been widely accepted, knowledge of its present level is unclear. In a country like the Philippines where the pace of development is as varied as its islands, varying levels of initiation and duration of breast-feeding among population subgroups is not surprising.

It has been the aim of the study 1) to measure the levels of initiation and duration of breast-feeding and full breast-feeding and to examine the differentials by socio-economic and demographic characteristics of women and their husbands and 2) to identify the determinants of breast-feeding and full breast-feeding initiation and duration.

The 1978 Republic of the Philippines Fertility Survey-World Fertility Survey data is used in the study. Due to the problems inherent in breast-feeding analysis, this study on levels and differentials uses data for the latest child born to each woman in the last 5 years prior to the survey. The median duration of full and total breast-feeding, using the SPSS subprogram 'SURVIVAL' for life table analysis, is calculated for breast-feeding women only. A multivariate regression analysis is employed to determine the

determinants of breast-feeding and full breast-feeding initiation and duration. To circumvent the 'censoring' problem data on women involving their latest child born in the first three of the five years prior to the survey is used in the regression of total breast-feeding duration. Data on women involving their latest child born in the first four of the five years prior to the survey is used in the regression of full breast-feeding duration.

Assuming breast-feeding to start immediately from birth, the study reveals that 80% of women fully breast-fed their latest child for 5.3 months on the average, while 5% started mixed-feeding from birth. Altogether these women breast-fed for a total period of 14.7 months on the average.

The results show that almost all factors deterrent to breast-feeding initiation and duration are characteristics of more modern and developed parts of the country. Low initiation and short duration of breast-feeding are found among the Tagalas, the residents of Metro Manila and urban region, the better educated especially those with some college and college degree, those employed outside the home, the professional and clerical workers, and sterilized women or hormonal contraceptive users. Women whose husbands have higher education and employed in professional or clerical jobs had also low initiation and short duration of breast-feeding. Generally, the subgroups with highest initiation have the longest duration of total and full breast-feeding; the subgroups with low initiation, the shortest duration. A very similar pattern is observed for full breast-feeding initiation and duration, except for Moslem women who had high initiation and long breast-feeding duration but reasonably short full breast-feeding duration. Women who wanted no more children initiated breast-feeding less. No significant differential by sex of

the latest child and religion is observed, except for a minor differential in breast-feeding duration by religious groups.

Age of women varies inversely with breast-feeding initiation and directly with breast-feeding duration. Initiation and duration of total and full breast-feeding generally decrease with increasing age at marriage and follow a inverted U-shaped pattern with increasing birth order and number of living children.

To identify the determinants of breast-feeding initiation and duration, the following variables were used as independent variables: age at birth of the latest child, age at marriage, wife's year of education, husband's occupation, wife's place of work, region of residence, ethnicity, desire for future birth, childhood residence, and contraceptive use. Altogether these variables account for 9.7% and 13.0% of the variations in breast-feeding and full breast-feeding initiation respectively and for 16.6% and 12.3% of the variations in breast-feeding and full breast-feeding durations respectively. In all regression equations childhood place of residence appears not significant, while contraceptive use shows significance only in total and full breast-feeding duration. Desire for future birth is not significant in full breast-feeding initiation. Age at marriage has a negative and significant effect on breast-feeding duration but does not significantly affect breast-feeding initiation. On the other hand, age at birth of the latest child has a negative effect on breast-feeding initiation but does not significantly affect breast-feeding duration. Common dterminants of both initiation and duration of total and full breast-feeding are wife's education, place of work, region of residence, ethnicity, and husband's occupation.

5.2. Concluding Remarks

Overall, the level of initiation and duration, though not remarkably low, is not satisfactorily high by world nor Asian standard. The majority of the women still breast-fed and the median duration is still long. However, the time is ripe to prevent a further breakdown of traditional breast-feeding practices. It is observed that the proportion dead before age 2 years among latest children of non-breast-feeding women in this study is 136 per thousand compared to 29 per thousand among breast-feeding women. The results of this study show that 15% of women never initiated breast-feeding their latest child. After 3 months, 10% of the initiators stopped breast-feeding. Before the end of the first year after birth only three-quarters were still breast-feeding and only a quarter continued to breast-feed beyond two years. Desirable goals are to enhance breast-feeding to attain universal initiation and to encourage prolonged breast-feeding among all women. It should be borne in mind that although the median duration is quite long, half the women breast-feed for duration shorter than this figure.

Paediatricians should take the lead in promoting breast-feeding. Hospital practices and facilities need to be changed to provide conditions favourable to successful breast-feeding. Hospital staff need to be reoriented as was done in a case study by Relucio-Clavano (1981) at Baguio General Hospital. The results of her study showed remarkable decline in the incidence of clinically septic new-borns and in the incidence of diarrhea when breast-feeding replaced artificial feeding as hospital policy. With the concerted effort of hospital personnel, a breast-feeding campaign seems easier since women are within the reach of hospital staff from pre-natal to post-natal period.

Regional differentials suggest varying the strategy for a plan of action for each region to combat the breast-feeding decline. Decentralized planning and greater effort to be focused in urban areas, particularly in Metro Manila and urban Mindanao, are essential.

Maternal and child health program, integrated with family planning program, should be designed to promote breast-feeding practice by educating the women and giving them moral support to establish and continue breast-feeding. Less educated, rural women employed on the farm need to be educated on the proper timing of food supplementation and the kind of food the infant requires at each stage of development because these women tend to give food supplementation quite late.

Although non-contraceptive use has been found to be positively associated with breast-feeding duration, this should not run counter with family planning goals. Since breast-feeding is not an entirely reliable contraceptive on an individual basis, women should be encouraged to use non-hormonal contraceptives, pending the establishment of research findings on effects of hormonal contraceptives on lactation (see Laukaran, 1981 for contraceptive choices for lactating women).

Baby centers near the place of work, especially in large industrial companies, and an extended maternity leave of say, three months, will give women the chance to first establish full breast-feeding for three months and to continue breast-feeding with supplementation after they return to work.

A long term program may involve the inclusion of the mechanics of breast-feeding in health education as well as in population education. The value of breast-milk to both mother and infant and the impact of

savings from not purchasing infant formula to the family and the national economy as a whole are among the things future mothers should be aware of. Attitude toward exposure of the breast in public may be changed by changing the values attached to the breast as a sex symbol.

Further research using representative sample size on health, attitudes or psychological determinants of breast-feeding practices is recommended.

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APPENDIX I

CHOICE OF OPTIMUM TIME PERIOD IN BREAST-FEEDING ANALYSIS

The methodological issues involved in the birth interval data analysis compiled from retrospective surveys apply to the present breast- feeding study (for example, see Rindfuss et al, 1982 and Srinivasan, 1980). The first concerns the interrruption of events, better known as the 'censoring' problem. Women still breast-feeding at the time of the survey are censored by the interview itself and their lactation duration is only known to be of at least a certain period, measured by the interval from birth to interview date. Furthermore, censoring arises because the breast-fed infant has died or the mother has become pregnant again, although some studies (for instance Huffman et al, 1980) have shown that some women continue to breast-feed even during pregnancy. However, it has been shown elsewhere (Smith, 1980; Rodriguez and Hobcraft, 1980; and Rindfuss et al, 1982) that censoring bias can be handled by using the life table techniques.

The second issue concerns the selectivity bias which varies with the data set in hand. For breast-feeding analysis, there is a substantial literature outlining the selectivity issues associated with the use of the open birth interval data, the last closed birth interval data, and the current status data (see Page et al, forthcoming). While the use of the current status data in measuring the length of breast-feeding seems promising because it is more likely to be free from memory bias particularly when the reported dates of birth are accurate, it proves insufficient due to relatively fewer women still breast-feeding at interview date. The numbers become even smaller when the population is categorized into different subgroups and the proportion still breast-feeding fluctuates especially at

longer durations post-partum (Page et al, 1977; Lesthaeghe and Page, 1980) and smoothing not only becomes tedious for differential analysis but may also dampen or cancel the differences in breast-feeding practices between population subgroups. Because of these limitations, current status data are not used here for further analysis.

The last closed birth interval data and the open birth interval data have problems of their own, in addition to memory bias particularly among women whose births occurred years ago. Given the selectivity bias associated with each data set, the strategy is to choose an optimum time period which will provide a lesser selectivity bias and greater reliability. Data for women with last and last-but-one live births are analyzed and compared to segments of the sample whose births occurred in the last 5 or 3 years. Appendix Table 1.1 shows that the durations of breast-feeding the next-to-last child are systematically lower than those of the last child born during the same time period, in spite of the latter data set containing women who have not completed breast-feeding. The differences are more glaring when the calculation of breast-feeding duration is restricted to lactating women only and increase with longer time period elapsed since the birth occurred. This is to be expected since women in the last closed interval are likely to be those with shorter birth interval, especially those in the last three years who have another birth during that period and hence, likely to breast-feed for a shorter time (Page et al, forthcoming). In addition to the selectivity bias associated with the last closed birth interval data, next-to-last live births of women whose last two pregnancies resulted to non-live births were excluded as a result of the coding scheme adopted during the data processing. The magnitude of this omission is unknown. Owing to the absence of a technique which can successfully handle these problems, henceforth the data on closed birth interval

will not be analyzed.

It is recognized that selectivity is biased toward longer breast-feeding in the open birth interval data since women in this groups are likely to be those who have longer birth interval and a greater chance to breast-feed longer (Page et al, forthcoming). By restricting the analysis to some recent period, not only selectivity is reduced but also memory bias. In conjunction with the choice of optimum time period in breast-feeding analysis, the approach and choice of index are equally important. Lesthaeghe and Page (1980) have pointed out that means calculated from raw distributions which are subjected to fluctuations and any analysis based on the means could be seriously distorted. They have shown that if the true value is shifted through rounding of reports in a neighboring number, this can result in serious distortion even in the median. This problem of distortion is inevitable even when the life table technique is used. However, it is shown below that the life table technique is robust when the data relate to events which have occurred just recently.

The empirical results show that inclusion of women who did not breast-feed in the calculation of the mean and the median has affected the results. The effect is a dampening of the median duration from 0.4 to 2.6 months and the mean duration from 2.5 to 2.6 months (See Appendix Table 1.1, Panels A and B). Inasmuch as initiation of breast-feeding is separately measured, it is deemed practicable to take duration of breast-feeding to represent those women who breast-fed only. It can be observed that the mean is systematically higher than the corresponding median due to the influence of 'outlying values', i.e., the few women who breast-fed for an over-extended period. The contribution of some 4.4 to 9.4 percent women breast-feeding beyond three years ranges from 2.2 to 4.4 months.

Appendix Tables 1.1.

Initiation and Duration of Breast-feeding Derived from Various Sets of Data

Measure	Women with Last Live Birth Occurring in the Last ____ Years			Women with Last-but-one Live Birth Occurring in the Last ____ Years		
	35	5	3	35	5	3
N	8,438	6,110	4,963	5,812	2,638	1,184
Number Breast-feeding	7,140	5,206	4,245	5,024	2,276	993
% Breast-feeding	84.6	85.2	85.5	86.4	86.3	83.8
A) Duration of Breast-feeding in Months (Includes women who did not breast-feed.)						
Quartile 1	4.6	5.2	5.0	6.4	6.5	4.1
Median	12.6	12.8	13.0	12.4	12.5	12.2
Mean	14.3	15.6	15.3	12.0	11.8	10.4
Quartile 3	18.7	22.1	24.0	15.8	15.8	14.4
Index of Heaping	.4382	.3928	.3502	.4565	.4201	.3695
B) Duration of Breast-feeding in Months (Excludes women who did not breast-feed.)						
Quartile 1	10.2	11.3	12.0	9.9	10.0	9.1
Median	13.0	14.7	15.6	12.7	12.8	12.5
Mean	16.9	18.2	17.8	13.7	13.5	12.3
Quartile 3	24.0	24.3	24.5	17.7	17.2	15.3
Index of Heaping	.5185	.4616	.4100	.5285	.4870	.4411
C) Duration of Breast-feeding in Months (Excludes women who did not breast-feed and those still breast-feeding.)						
Quartile 1	8.0	6.6	5.3			
Median	12.5	12.4	12.2			
Mean	13.2	12.2	11.3			
Quartile 3	17.4	15.9	15.4			
Index of Heaping	.4847	.4308	.3840			

Note: Two "Not Stated" cases are excluded in the calculation of duration of breast-feeding for women in the 35 years segment.

However, the mean in the last 3 years data sets is systematically lower than that in the last 5 years data sets. This is because more than half (54%) of lactating women with last live birth occurring in the last 3 years were still breast-feeding at survey time, thus, a truncation is evident. Indeed, the median appears to be a typical measure.

Appendix Table 1.1 (Panels B and C) also shows that if women who are still breast-feeding at interview date are excluded from the life table analysis, an underestimate in the mean and median breast-feeding duration arises. The underestimation is relatively large in the last 3 years data set, again because of a high proportion still breast-feeding among these women.

On the other hand, only 46% of women were still breast-feeding in the last 5 years data set and the interval is long enough to allow the other women to complete lactation. In fact, the maximum completed duration reported by these women is 46 months only. Some 8% are still breast-feeding after 48 months. Truncating the duration for these women to 48 months would not affect the median. This in fact has been done in the construction of life tables used in the main analyses inorder to close the right tail of the distribution on the cumulative proportion breast-feeding.

Another important problem concerns the quality of the data. The completeness of report does not necessarily imply accuracy of the data reported, as can be gleaned from Appendix Tables 1.2 and 1.3. Within a given age cohort of women and a given birth order of the last child, recall error generally increases with the length of time elapsed since the event has occurred. (The figures on the youngest and oldest age groups are to be interpreted with caution since the existence or non-existence of breast-feeding differential is due either to small

Appendix Table 1.2.

Percent Distribution of Breast-feeding Women with Last Live Birth Occurring in the Given Period, Median Duration of Breast-feeding, and Index of Heaping by Current Age and Age at Confinement

Woman's Age	Last 35 Years			Last 5 Years			Last 3 Years		
	%	M	Index	%	M	Index	%	M	Index
N	7,140	13.0	.5185	5,206	14.7	.4616	4,245	15.6	.4100
Age at birth									
15-19	4.4	14.2	.4109	5.2	15.8	.2793	5.8	16.5	.1877
20-24	19.6	13.0	.4651	22.3	14.1	.4262	23.9	14.9	.3813
25-29	24.2	12.8	.4931	25.8	13.0	.4684	27.1	14.5	.3566
30-34	23.3	13.0	.5392	21.5	15.3	.4745	21.5	16.8	.4522
35-39	19.6	13.1	.5673	16.2	18.1	.4849	14.3	18.5	.3926
40-44	8.1	13.0	.5410	7.9	13.0	.4926	6.2	14.2	.4024
45-49	0.8	(24.2)	.7321	1.1	(24.2)	.7321	1.2	(24.3)	.7150
Current Age									
15-19	1.9	19.6	.1328	2.6	19.6	.1328	3.2	19.5	.1362
20-24	12.6	14.0	.3767	17.1	14.2	.3723	20.0	14.5	.3319
25-29	19.0	13.8	.4477	25.0	14.1	.4300	26.9	14.8	.3662
30-34	19.3	13.0	.4885	22.1	14.7	.4764	22.3	16.1	.3683
35-39	18.5	13.2	.4994	18.2	14.9	.4661	17.0	17.2	.5083
40-44	15.4	12.9	.5627	11.0	15.7	.5022	8.3	16.9	.3967
45-49	13.3	12.8+	.6109	4.1	16.8	.5820	2.2	24.2	.5807

Note:

M - stands for median.
() - based on less than 100 cases.
\+ - excludes 2 "Not Stated" cases.

The youngest and oldest age at birth in the last 35 years segment are 14 and 48 years, respectively.

Appendix Table 1.3.

Percent Distribution of Breast-feeding Women with Last Live Birth Occurring in the Given Period, Median Duration of Breast-feeding, and Index of Heaping by Birth Order of the Last Child

Birth Order	Last 35 Years			Last 5 Years			Last 3 Years		
	%	M	Index	%	M	Index	%	M	Index
N	7,140	13.0	.5185	5,206	14.7	.4616	4,245	15.6	.4100
1	9.3	12.7	.4258	10.4	13.0	.3693	11.7	13.3	.2618
2	14.2	13.0	.4105	15.7	14.3	.3748	16.5	15.2	.3079
3	14.8	12.8	.5287	15.1	13.0	.5209	15.2	14.9	.4312
4	13.3	12.8	.5034	13.2	13.0	.4700	13.6	14.0	.3905
5	11.2	14.5	.5421	10.8	16.8	.4453	10.8	18.0	.5501
6	9.8	14.2	.5285	9.5	14.8	.4323	9.2	16.3	.3864
7	7.9	13.0	.5860	7.5	16.8	.5600	7.2	16.8	.4518
8	6.5	13.0	.5973	5.7	15.0	.5167	5.5	17.7	.5561
9	5.6	15.6	.6265	4.8	19.3	.6355	4.1	24.0	.5292
10	3.4	13.0	.5515	3.3	15.1	.3655	2.8	18.5	.3722
11+	3.9	12.9	.5021	3.9	14.4	.4417	3.5	17.6	.3463

Note: M - stands for median.

numbers or that they are the same women. It must be noted that the survey gathered information on ever-married women aged 15-49 only; thus, women in the last 35 years data set aged 45-49 years at the birth of their last child had this birth in the last 5 years. Similarly, the same women are among those aged 45-49 at the time of interview in the last 3 years segment.) The tables further show that the magnitude of recall errors is reflected not only in the median duration but is evident by the systematically greater index of heaping with events occurring further back in time. The index of heaping is arbitrarily defined here as the sum of the probabilities of weaning during the 6th, 12th, 18th, 24th, 30th, and 36th months as derived from the life table probability density function (the estimated probability per month of breast-feeding in the ith month). The memory error, hence artificial rounding of responses to preferred months, is not great for mothers who have completed breast-feeding recently. The relatively greater heaping in the responses of oldest women and those with many children may reflect a genuine tendency to wean the last child at a particular age. In this case, more than half of the women aged 45-49 at the birth of their index child would have weaned during the 24th month.

In the light of the foregoing arguments, it is deemed necessary to restrict the analysis to a subset of the total sample. By so doing, not only selectivity and memory bias are reduced but the data would be representative of recent practices of women. Where breast-feeding may have been changing over time, the data for all women would not refer to the same time period and use of such may be questionable (Page et al, forthcoming).

Current status data would prove inadequate for the present study because this approach requires larger samples. In addition, the sample size fluctuates in successive intervals and longer breast-feeding duration is likely to be found among these women (Ferry, 1981).

On the one hand, combining all births which have occurred during the last 5 years would complicate the breast-feeding differential analysis later. This is because some women who are more fertile will be represented twice or more. On the other hand, data for all women are less reliable due to memory bias. So the best alternative is to combine the current status data with completed breast-feeding data for the latest child (open birth interval data) and use the life table technique. Apart from a fairly good sample size, the choice of using the open birth interval data beginning in the last 5 years seems appropriate because of a relatively high reliability and lower selectivity and censoring biases. It is a compromise between the last 3 years segment (which may be more reliable but has a proportionately large number of censored data by women still breast-feeding and is relatively over-represented by women aged 20-34 years and under-represented by women aged 40-49) and the total sample with a last live birth occurring in a span of 35 years (which is largely affected by recall error particularly among older women with higher birth order children). It is assumed that any amount of bias that remains is outweighed by the gain in data quality and large sample size and that the results do provide a reasonably better measure of breast-feeding duration. The dissimilarity in the the frequency distribution of women in the last 5 years with the total survey sample suggests that the results be interpreted to reflect the current situation since this represents the group who are exposed to the risk of not breast-feeding.